THE CAMERA AS HISTORIAN

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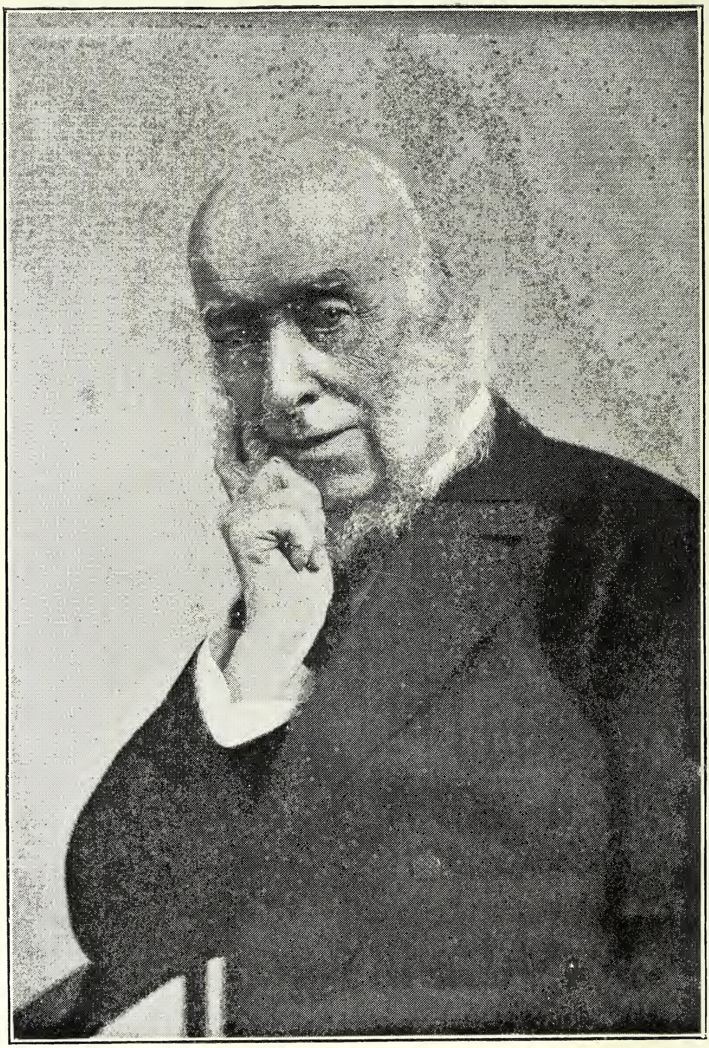

Photo: W. Ransford.

[*Facing title-page.*

Yours truly

J. Benjamin Stone

THE
CAMERA AS HISTORIAN

A HANDBOOK TO PHOTOGRAPHIC RECORD WORK FOR THOSE WHO USE A CAMERA AND FOR SURVEY OR RECORD SOCIETIES

BY

H. D. GOWER

HON. SURVEY SECRETARY PHOTOGRAPHIC SURVEY AND RECORD OF SURREY

L. STANLEY JAST

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That which thy father olde
Hath left thee to possesse;
Doe thou that dearlie holde
To show hys worthynesse.

Old Inscription.

TO THE LATE

SIR J. BENJAMIN STONE, M.P.

THE FOUNDER OF THE

NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION

AND ITS MOST PROLIFIC WORKER

AND DURING HIS LIFETIME

THE GREATEST PERSONAL FORCE

IN THE MOVEMENT FOR

PHOTOGRAPHIC RECORD

THIS BOOK

IS RESPECTFULLY

DEDICATED

PREFACE

THE term "Photographic Survey" is unfortunately ambiguous. It may mean a method of surveying a country for the purpose of map making, in which photography is largely employed, or it may mean the recording, by the camera, of any aspect or department of nature or man's handiwork. It is in the latter sense it is used in this volume. It would be well if the better word "*Record*" were generally adopted in place of "Survey," leaving the latter to its more limited and technical meaning. It would, of course, have to be adopted also in the collateral terms "Civic Record," and "Regional Record," instead of "Civic Survey" and "Regional Survey."[1]

The thing itself is new, and the literature about it is confined to articles and pamphlets. This is the first attempt to deal with the subject in a volume, and the authors are conscious that they cannot have escaped the imperfections inseparable from pioneer efforts. But the movement for photographic record has now reached a stage when some sort of manual seems essential, in order to collate and conserve the experience already gained, and give a new impetus to its development.

A very large number of modern books are "parasitic," a rehash of other books, and not the outcome of fresh effort and fresh thinking. In no department of technical literature is this truer than of photography. Whether the present book justifies itself or not, it is at least an honest piece of book-writing and not of book-making, and as the outcome of practical experience it ought to have a certain value, even if it only provides the rough scaffolding for a later and more complete work. In particular the account of what has been and is being done by the various Photographic Record Societies, especially abroad, is far from complete. Any information regarding omissions will be gratefully received by the authors, who may be addressed, care of the publishers.

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[1] It is, perhaps, necessary to remark that the distinction suggested is not observed in the body of the present work.

The authors have not hesitated to mention the names of particular firms from whom special supplies or equipment may be obtained. The implication is in no wise that similar articles may not be obtained from other firms, but they have suffered too often from lack of precisely this information to allow what they conceive to be a sense of mistaken delicacy to prevent them making the information given as complete and immediately useful as possible. They may add that they have no commercial interest whatever in any of the articles or special supplies named. It is much to be wished that the Federation of Photographic Record Societies, when conditions permit of the resumption of its activities, should standardize and, if found desirable, arrange for the supply of such articles as have particular application to the purposes of photographic record, and cannot be easily obtained through the ordinary channels.

It is hoped that the book may have use for others than those interested or engaged in record work. The details as to inexpensive copying apparatus, the binding, etc., of lantern slides, and so forth, may interest photographers generally, while the methods of classifying and storing prints may not be unworthy of the notice of curators and librarians.

The authors have received help from many sources and from many persons, and particularly from officials and members of Photographic Record Societies, to whom their acknowledgments are hereby cordially rendered.

This book appears while Europe is still under the black shadow of the Great War. It is not, therefore, inappropriate, for the Great War itself has furnished an illustration of the value of the work herein advocated and described. An appeal was made sometime ago in the press for any prints or pictorial records of churches and other buildings in Belgium, to help in the reconstruction of that country when peace arrives. And there are other destructive forces in nature than the Germans, and as ruthless—fire, for example, and earthquake. Yet it is probable that there are very few buildings in the world of which *complete* photographic records exist, and many important, historic and beautiful buildings very imperfectly recorded, and those records often scattered in many hands, and exposed sooner or later to almost certain destruction.

H. D. G.
L. S. J.
W. W. T.

May, 1916.

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THE
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CHAPTER I

PHOTOGRAPHIC RECORD WORK: ITS SCOPE, VALUE, AND FUTURE

The means whereby the past, particularly in its relation to human activities and their results, may be reconstructed and visualized, can be roughly grouped under the four headings of material objects, oral tradition, written record, and lastly, graphic record, whether pictorial or sculptural. It is no part of our purpose to belittle the value of any of the first-named tools of the historian or the scientist; but it will probably be conceded that in many respects the last named has a value greatly outweighing the others. It is obvious, moreover, that the value of graphic as of all other record rests entirely upon its accuracy. Now, not only is absolute fidelity to the original beyond attainment in the case of the artist, but the work even of the most painstaking draughtsman is often coloured by his individuality to such an extent that the detailed characteristics of the original he is reproducing assume in his work aspects quite foreign to their real nature.

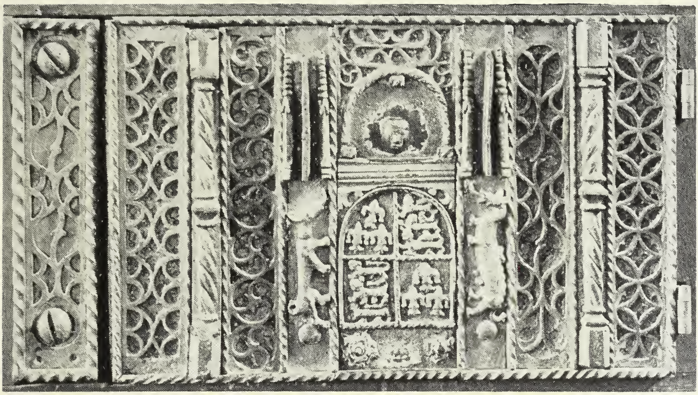
An instructive example of this is to be found in a drawing (reproduced in figure 1), forming plate number 37 in Pugin's *Examples of Gothic Architecture,* illustrating a wrought-iron lock in Beddington Manor House. A portion of the introductory chapter of this work is so germane to the matter that we make no apology for quoting it :—

"Fidelity must constitute the chief value of the work ; and, bearing this consideration always in mind, the strictest attention has been paid to the display of every subject exactly as it exists ; or, where the original has become imperfect, to ascertain by a careful examination of those parts which yet remain entire, how much is wanting to restore the whole to a complete state, and so to represent it. Such a task must, of course, be frequently attended with difficulty, and, in certain instances, could not be performed without trusting something to imagination ; but no liberty of the sort has been taken where the original authority could be obtained. However, after using all practicable care and diligence, some inaccuracies may perhaps be discovered, and for them the indulgence of the public must be solicited."

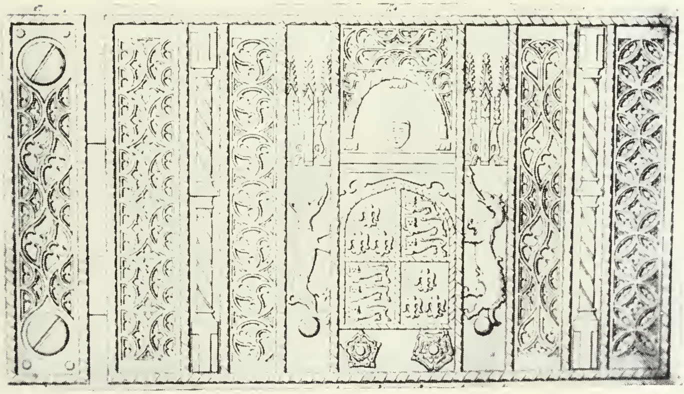
For comparison we reproduce also a photograph of the lock, taken by one of the authors.

Close examination will reveal a number of minor discrepancies ; for example, the ornamentation on both sides is wrongly drawn ; the upper central panel is incorrect, the face in particular differing widely from the original ; and the proportions of the dragon are inaccurate.

This illustration is given as well epitomizing the case for those who urge that the claim of photographic



Direct photograph of Beddington Lock.



Architect's drawing of same.

[*Facing p. 2.*

FIG. 1.—Photographic contrasted with graphic record.

record to superiority over all other forms of graphic record is incontestable.

The discovery and development of photography, therefore, has placed in our hands a power incomparably greater than existed before of enabling the rapidly changing phases of our country and its people to be "fixed" by means of authentic pictorial record. This power implies a corresponding responsibility. There are few departments of human activity wherein such records of the distant past, were they available, would not be treasured by the student of to-day.

To the historian and the scientist the value of exact records, indisputably authentic, can hardly be overrated. Such are the primary requirements of their work, the raw material necessary for their labours. The architect, and especially the student of architecture, will find there is no index to what has been accomplished so instructive as a series of photographs, comprehensively recording both broad outlines and details, compactly arranged and classified in such manner as to facilitate reference and comparison.

The artist will find in a record collection alike suggestion and guidance: for true as it may be that a work of art must be more than, and different from, a mere transcript of nature, the highest art must be based on an intimate acquaintance with, and accurate knowledge of, nature itself.

The politician, in his efforts for the betterment of our social structure, must, if his constructive work is to stand the test of actual trial, take for his starting point the existing conditions of his time, and must duly weigh the evolutionary forces which have brought those conditions into being. For both purposes exact records of material conditions, chronologically arranged for purposes of comparison, furnish a valuable, indeed a necessary, basis for generalization.

Nor is the work without value in a commercial and legal sense. Questions relative to property, and mutual rights therein, often arise, the solution of which requires evidence based on a state of things which has passed away. Those who have had to seek for such evidence know well how prone to error is the human memory, and to how great an extent, albeit quite unconsciously, recollection and imagination will blend when an effort is made to construct a mental picture of the past. A pictorial record in such cases will serve the double purpose of checking the vagaries of memory by reference to actual facts, and of recalling to mind, through the powers of suggestion, details that otherwise would be irreclaimable.

Little as has already been accomplished in the way of photographic record, compared to what remains to be done, existing photographic record collections have been found of great actual value in cases of dispute as to rights of way and "ancient lights."

The value of adequate photographic records, kept as the common heritage of all, in fostering the civic spirit, is not to be overlooked. A healthy corporate consciousness constitutes a quality in our civic and national life which cannot be too highly valued or too sedulously fostered. The saying that "evil is wrought by want of thought more oft than want of will" is truer and cuts deeper than we often realize. And in the fostering of such a consciousness exact records of fact, by reference to which misunderstandings and misapprehensions can be dispelled, have their fitting place.

The amateur photographer (and his name is legion), did he but know it, has a vital interest in the development of photographic record work.

Photography as an outlet for one's energies in times of leisure has undeniable attractions—witness the growing numbers of those who possess, and with more or less skill use, a camera. But the pleasures of photography are to a large extent conditioned by the range of subjects upon which the photographer can exercise it. This aspect of the matter is realized, not in the first flush of pleasure at the powers photography places in one's hands, but at the time when, the vein of subjects immediately surrounding one having been worked out, the need is felt for further worthy subjects of portrayal. If that need be unmet, the camera may be gradually laid aside and a pleasant and profitable pursuit fall into desuetude. Here comes in the charm of record work for the amateur. Let such a one be but brought to realize that by a little systematic regulation his work can be made to produce not merely personal and ephemeral gratification, but results of great present and almost incalculable future value, and his interest in his hobby will be powerfully stimulated, his pleasure in it gain a new and enduring lease of life. This transformation is not imaginary; it has been experienced again and again by amateur photographers who have come to realize their indebtedness to the movement for Photographic Record for added pleasures in the employment of their leisure hours, and for the gratification which results from the consciousness of doing work of value to others.

Nor is the appeal of record work to the amateur limited to this consideration; in many cases the turning of one's energies to systematic photography will open up avenues of thought and lead to studies which will enrich life with the purer pleasures of the intellect.

Enough has been said to show the potential value and the attractiveness of the work. There is a further consideration which should lead to its speedy and general inauguration.

One of the outstanding characteristics of our time—as contrasted with the past—is its tendency towards the elimination of waste of power—the economical direction of human activities so as to increase their productivity and effectiveness—the utilization of what have heretofore been regarded as "waste products." To the engineer it is abhorrent that any energy be allowed to run to waste.

But in the domain of photography the amount of "horse-power running to waste" is appalling—and all for lack of a little system and co-ordination. Shall this be allowed to continue? Shall the product of countless cameras be in the future, as in the past (and in large measure to-day), a mass of comparative lumber, rapidly losing its interest even for its owners, and of no public usefulness whatever? This is a question of urgency. Every year of inaction means an increase of this wastage.

Hitherto little or no attention appears to have been paid to the enormous value of preserving, in such way as to ensure their availability for the public of the future, the splendid photographic records of our national life contained in the cinematograph films daily taken for exhibition at "moving picture" theatres. This subject will be treated in a later chapter; but its importance warrants a reference to it here.

Here the municipality—or whatever be the local governing body—surely has some interest, nay, the authors would urge, has a clear duty.

The work of Photographic Survey and Record must, if it is to attain its greatest measure of usefulness, be largely a voluntary one; but its stimulation and support surely falls within the province of any body to whom may be entrusted the interests of the public. The authors believe that in time the recognition of this will result in our municipalities co-operating in, and substantially aiding, the work.

Its inception should not, however, be allowed to wait for this: the value of the work is best proven by its accomplishment, even though this at first be but partial. Of one thing the authors feel assured; in every district where the movement is taken up hereafter, those who become interested in it will come to keenly regret the apathy which has in the past allowed so much valuable material to be lost beyond hope of recovery.

CHAPTER II

WHAT HAS BEEN DONE

So far as the authors are aware, no attempt has hitherto been made to compile an account, with any pretensions to completeness, of what has already been done in the direction of Photographic Survey and Record work.

The movement has been unco-ordinated, unsystematic, and sporadic, and in many cases a commencement has been made only to die out again, when the energies of the prime movers ceased to be available.

In these circumstances it is but natural that the present attempt to chronicle the progress made should be very partial and incomplete. It is hoped, however, that the information here brought together may become the nucleus of a reasonably complete storehouse of information on the movement, and that to this end any reader who has knowledge of work unrecorded in these pages will either send it to the authors, or acquaint them of possible sources of information, so that in a future edition of this work or in some other way what has so far been accomplished may become generally known.

The information given is grouped under the following heads :

Section A.—Great Britain.
  Subsection A 1. General Surveys, pp. 9–12.
    A 2. County Surveys, pp. 12–21.
    A 3. Town Surveys, pp. 21–29.
Section B.—Foreign and America, pp. 29–31.

The details are then treated under each survey, as far as the information lends itself to systematic analysis, in the following order:

1. Name of Society or Public Body by whom work is carried on.
2. Area of work.
3. Address for communications.
4. Where collection is stored.
5. Extent of collection: A. Prints.
    B. Lantern slides.
    C. Negatives.
6. Annual subscription, terms of membership, or source of income.
7. Other information.

SECTION A.—**GREAT BRITAIN.**

SUBSECTION A 1.—GENERAL SURVEYS.

National Photographic Record Association.

The National Photographic Record Association was formed in 1897, on the initiative of Sir Benjamin Stone, "for collecting photographic records of objects and scenes of interest throughout the British Isles, with a view of depositing them in the British Museum, where they may be safely stored and become accessible to the public under proper regulations." The collection, which includes upwards of 4000 prints, is stored under the charge of the officials of the Print Room of the British Museum.

In 1910 the Association was dissolved, it being recognized that the work of Photographic Survey and Record could be more effectively carried on by the numerous county and other local Survey and Record Societies which had been formed in the meantime.

The work of the National Association, however, is not to be measured by the collection of prints deposited at the Museum, but rather by the encouragement given by it to the whole movement. The annual meetings of the Association, held for several years under the Presidency of Sir Benjamin Stone, formed a common meeting-ground for all record workers in the neighbourhood of London, and did much to popularize and consolidate the general movement in the country and in the Home Counties more particularly.

NATURE PHOTOGRAPHIC SOCIETY.

The Nature Photographic Society (Hon. Sec. Carl Edwards, F.N.P.S., Woodlesford, Leeds) undertook in 1912 at the suggestion of their then President, Mr. F. Martin-Duncan, F.R.P.S., F.R.M.S., a Nature Photographic Record and Survey of the British Isles, and apparently their activities have been since extended to embrace any part of the globe visited by their members. The President's address stated: "The object of this work should be to form a complete, permanent, graphic record of the fauna, flora, and geological aspect of each county throughout the British Isles." It is not yet known where the collection is to be deposited. The subscription is 2*s*. 6*d*. per annum.

British Association for the Advancement of Science: Geological Photographs.

A Committee on Geological Photographs was appointed by the British Association in 1889, and by 1904 a collection of over 4000 records had been formed, which is deposited in the Museum of Practical Geology, 28, Jermyn Street, London, where it is accessible to the public.

Wales.

1. **Name.**—Photographic Survey of Wales.

2. **Area.**—The Principality of Wales, and Monmouthshire.

3. **Address.**—W. Evans Hoyle, M.A., D.Sc., Director National Museum of Wales, Cathays Park, Cardiff.

4. **Collection Stored.**—National Museum of Wales.

7. **Other information.**—The work was instituted in 1911, upon the formation of a Photographic Section of the Cardiff Naturalists' Association, with Mr. Gilbert D. Shepherd, of Gresham Chambers, Kingsway, Cardiff, as Hon. Secretary. The subjects intended to be represented comprise Geology, Meteorology, Botany, Zoology, Topography, Archæology and History, Architecture, Art, Literature, Industries, and Passing Events. A special scale for indicating in photographs the dimensions of small objects is supplied at 2*d*.

SCOTLAND.

1. **Name.**—Photographic Survey, under the Laboratory of Science, Paisley.

2. **Area.**—Renfrewshire, Sterlingshire (part), Lanarkshire, Ayrshire, Dumbartonshire, Bute, Arran, and for some subjects Central Scotland.

3. **Address.**—J. M. B. Taylor, 5, County Place, Paisley, N.B.

4. **Collection Stored.**—The Laboratory of Science, Paisley.

5. **Extent—Prints,** 10,100 ; **lantern slides,** several hundred ; **negatives,** 10,100.

6. **Subscription.**—Membership of Laboratory of Science, Gentlemen, 21*s.* ; Ladies, 15*s.* per annum.

7. **Other information.**—The Survey was founded in 1890, by Mr. J. M. B. Taylor, to carry on and extend field work in Natural Science, which had been in progress since 1882 ; the subjects represented are Agriculture, Antiquities, Anatomy, Pathology, Botany, Meteorology, Natural History, and Geology.

SUBSECTION A 2.—COUNTY SURVEYS.

CHESHIRE.

A reference appears in a paper by W. Jerome Harrison in 1889 to a recently formed local Photographic Survey by the Birkenhead Photographic Society for the "Hundred of Wirrall," division of Cheshire.

ESSEX.

1. **Name.**—Photographic and Pictorial Survey of Essex.

2. **Area.**—County of Essex.

3. **Address.**—Victor Taylor, Hurstleigh, Buckhurst Hill, Essex.

4. **Collection Stored.**—Essex Museum of Natural History (the Passmore Edwards Museum, Romford Road, Stratford, Essex).

6. **Subscription.**—*2s. 6d.* per annum.

7. **Other Information.**—Founded 17th December, 1904, by the Essex Field Club; prints are mounted (on brown vegetable cartridge) and stored at the expense of the Corporation of West Ham; they are filed flat, arranged in districts, with cross-references to subjects; records may be photographs, process pictures, drawings, paintings, or engravings, representing antiquities, anthropology, buildings of interest, geology, natural history, portraits, scenery, etc.

HEREFORDSHIRE.

1. **Name.**—Herefordshire Photographic Society, Record and Survey Section.

2. **Area.**—County of Hereford.

3. **Address.**—C. Gethen, 9, St. Nicholas Street, Hereford.

4. **Collection Stored.**—Hereford Public Library.

7. **Other Information.**—Prints are mounted on cut-out card mounts, and stored in boxes in the manner adopted by the National Photographic Record Association; they are numbered in order of accession and indexed; the boxes are stored flat.

KENT.

1. **Name.**—Kent County Photographic Record and Survey.

2. **Area.**—County of Kent.

3. **Address.**—H. E. Turner, B.A., B.Sc., 14, Queens Road, Tunbridge Wells.

4. **Collection Stored.**—The Museum, Maidstone.

5. **Extent.**—**Prints,** 1,400; **lantern slides,** none; **negatives,** 850.

6. **Subscription.**—2*s*. 6*d*. per annum or alternatively approved prints equivalent to not less than four whole-plate, six half-plate, or twelve quarter-plate.

7. **Other Information.**—Founded prior to 1908 at the suggestion of the late Mr. F. Snowden Ward and Mr. G. Abbott. Prints are mounted on thick, dark-brown paper, 12″ × 10″; stored flat in stained and varnished deal boxes costing about 5*s*. each; subjects represented are Architecture, Antiquities, Anthropology, Art and Literature, Scenery, Science, and Passing Events.

LEICESTERSHIRE.

A joint Committee was formed in 1901, consisting of representatives of the Leicester Literary and Philosophical Society, the Leicestershire Architectural and Archæological Society, the Leicester and Leicestershire Society of Architects, the Leicestershire Footpath Association, the Leicester Kyrle Society and the Leicester and Leicestershire Photographic Society, with the object of "collecting information relating to archæology, history, architecture, geology, ethnography, and other matters of interest, with the view of publishing it in the form of a complete record, and of photographing special objects of interest enumerated in the published record." It was proposed to include in the sphere of operations the County of Rutlandshire, and to take the parish as the unit area, save in the case of towns, where the whole town was taken as one. Records were to be in duplicate—one to go to the British Museum and one to the Leicester Museum. The authors have no information as to what has been since achieved.

MIDDLESEX.

1. **Name.**—North Middlesex Photographic Society.

2. **Area.**—Northern part of Middlesex.

3. **Address.**—H. W. Fincham, 70, Hillfield Avenue, Hornsey, N.

4. **Collection Stored.**—Hornsey Public Reference Library.

7. **Other Information.**—The Survey was inaugurated in February, 1903, on the suggestion of Mr. J. C. S. Mummery, F.R.P.S. The prints are loaned to the Public Library, but remain the property of the Photographic Society, who bear all expense of mounting and filing. Prints are mounted on sunk cardboard mounts, taking 8½″ × 6½″ or several smaller prints, and filed in pamphlet boxes measuring 12″ × 10″ × 4″; descriptions are on labels pasted at back of mounts. The prints are indexed to the 6″ Ordnance Survey map, with cross references. The subjects represented are Views, Buildings and Architectural Details.

NORFOLK.

1. **Name.**—Norwich Public Library Photographic Survey Record of Norfolk and Norwich.

2. **Area.**—County of Norfolk.

3. **Address.** — George A. Stephen, F.L.A., City Librarian, Norwich Public Library.

4. **Collection Stored.**—Norwich Public Library.

5. **Extent.—Prints,** 1521.

6. **Subscription.**—None. Supported by donations.

7. **Other Information.**—This Survey was founded in 1913 by the Libraries Committee, and is managed by an Advisory Committee, consisting of representatives of the library and the various local learned and scientific societies. The library defrays the cost of mounting, cataloguing and preserving the photographs. The subjects represented are: Architecture, Antiquities and Anthropology, Art, Industries, Literature, Biography, Natural Science, Topography, and Passing Events. Some of the photographs in the collection have been prepared from wax negatives or prints dating from the 'fifties and 'sixties. The first Exhibition was held in the City Library in December, 1913.

Northamptonshire.

In the first Annual Report (1902) of the Joint Committee for the Survey of Leicestershire (see above) reference is made to a Survey of Northamptonshire as having been completed. This would no doubt comprise some photographic records. The authors have no information as to where this collection is deposited.

In 1913 a purely photographic survey of the county was initiated by the Photographic Section of the Northants Natural History Society, under the management of a Special Committee, consisting of the above section and the Public Library Committee. The prints will become the property of the Library Committee, and will be available for inspection, but not for loan, in the Public Library. Large prints are asked for, but a maximum size of 11″ × 9″ is set. An exhibition is to be held periodically at the Public Library. The Hon. Sec. is J. Dickens, jun., Abington Street, Northampton.

SHROPSHIRE.

1. **Name.**—Shrewsbury Camera Club.

2. **Area.**—County of Shropshire.

3. **Address.**—Harry J. Beddows, Public Library, Shrewsbury.

4. **Collection Stored.**—Reference Library, Shrewsbury.

5. **Extent.**—The **prints,** $\frac{1}{1}$, $\frac{1}{2}$, and $\frac{1}{4}$ plate, were presented about 1908 by the Camera Club, but nothing has been done since; they are mounted in books, and classified topographically under parish divisions; the subjects are mainly archæological.

SOMERSET.

A Photographic Record Society was formed about 1897 as an offshoot of the Somerset Archæological and Natural History Society, but its activities practically ceased in 1900.

SUFFOLK.

1. **Name.**—Ipswich Scientific Society, Photographic Section.

2. **Area.**—Suffolk, more especially Ipswich and East Suffolk.

3. **Address.**—F. Woolnough, F.R. Met. Soc., Ipswich Museum.

4. **Collection Stored.**—Ipswich Museum.

5. **Extent.**—**Prints,** some hundreds; **lantern slides,** over 400; **negatives,** 800.

7. **Other Information.**—Prints are mounted on best cartridge, 21″ × 13″ folded once, and stored in temporary boxes costing 3*s.* 6*d.* each. Records are mainly of buildings, but any subject is accepted: the work has been in progress about seventeen years.

SURREY.

1. **Name.**—Photographic Survey and Record of Surrey.

2. **Area.**—County of Surrey.

3. **Address.**—J. Kenrick, Pendell, Bletchingley, Surrey.

4. **Collection Stored.**—Central Public Reference Library, Town Hall, Katharine Street, Croydon.

5. **Extent.**—**Prints,** 6805; **lantern slides,** 1434; **negatives,** about 2500; also a few cinematograph films.

6. **Subscription.**—Individual Members, 5s. per annum, or £1 1*s.* for five years; Affiliated Societies, 2*s.* 6*d.* for each of not more than two delegates to Council.

7. **Other Information.**—The Association was formed in 1902; Annual Meetings are held successively in different centres of population in the county; exhibitions are held at the time and in the place of the annual meeting; and from time to time in the lecture room of the Croydon Central Library; an annual excursion is held. The expenses of mounting and storage are borne by the Libraries Committee. An Annual Report, containing a good deal of miscellaneous information on survey matters, is issued. The methods

of this Society are dealt with at length in the body of the present work.

PHOTOGRAPHIC SURVEY OF SURREY.

A collection of records was commenced some years ago under the title of the Photographic Survey of Surrey. Some 200 records were obtained, but the work was allowed to lapse prior to 1902; the prints were mounted on cardboard, and the collection was kept in private hands at Guildford. The authors do not know where it is now stored.

SUSSEX.

1. **Name.**—Photographic Survey and Record of Sussex.

2. **Area.**—County of Sussex.

3. **Address.**—Frederick Harrison, M.A., 17, Compton Avenue, Brighton.

4. **Collection Stored.**—Brighton Public Library and Museum.

5. **Extent.**—Prints, 1448; **lantern slides,** 485; **negatives,** about 250.

6. **Subscription.**—*2s. 6d.* per annum.

7. **Other Information.**—Founded in 1903 by the Sussex Archæological Society; reorganized in 1907; has Sections dealing with Art and Literature, Passing Events, Natural History, Architecture and Folk Lore; storage boxes (flat) are provided by the Library; prints are mounted on art paper, 12″ × 10″.

WARWICKSHIRE.

1. **Name.**—Photographic Survey of Warwickshire.

2. **Area.**—County of Warwickshire and Birmingham.

3. **Address.**—Lewis Lloyd, Church Road, Moseley, Birmingham.

4. **Collection Stored.**—Reference Library, Ratcliffe Place, Birmingham.

5. **Extent.—Prints**, about 5000; **lantern slides** and **negatives**, none.

6. **Subscription.**—2*s.* 6*d.* (or six approved whole-plate prints) per annum.

7. **Other Information.**—Founded by the late W. Jerome Harrison and Sir Benjamin Stone as the outcome of suggestions in a paper read by the former before the Birmingham Photographic Society in 1889; the cost of mounting and binding the prints is paid by the Public Library, to which the prints belong; mounts (grey cut-out cardboard) vary in size from 9¾″ × 8″ to 25¾″ × 21½″; about twenty-five mounts are bound in a volume and this is placed in a box, the smaller boxes being filed vertically and the larger flat; prints are filed in order of accession and indexed; the subjects represented are mainly topographical and archæological.

WORCESTERSHIRE.

1. **Name.**—Worcestershire Photographic Survey.

2. **Area.**—County of Worcestershire and City of Worcester.

3. **Address.**—E. M. Firth, Enderlie, Arboretum Road, Worcester.

4. **Collection Stored.**—Victoria Institute, Worcester.

5. **Extent.—Prints**, 750.

6. **Subscription.**—2*s.* 6*d.* per annum.

7. **Other information.**—Founded, March 16th, 1896, in conjunction with the Worcestershire Camera Club;

the prints are stored in boxes and arranged by order of accession; a register is kept showing year received, number (consecutive), subject, date taken, size of print, and reference to Ordnance Survey map; the prints are indexed at the end of the register; prints received are exhibited annually in the Art Galleries of the Victoria Institute, and two awards are given for the best prints sent in; the average number of prints received during the last four years is twenty-two per annum. The subjects represented are: interiors and exteriors of old buildings, churches, manor houses, cottages, barns, etc.; sites of buildings, old doors, porches, and gateways; fonts, alms boxes, bells, preaching crosses, and monuments; avenues leading to mansions, cave-dwellings, stocks and whipping posts; old pigeon houses and dovecotes; old streets and roads; locks, quays, and bridges; proclamations; local events, street scenes, dancing bears, etc.; country life, hop-picking, cider-making, meets of hounds and beagles; copies of old prints.

SUBSECTION A 3.—TOWN SURVEYS.

BRENTFORD.

1. **Name.**—Brentford Public Library Committee.

2. **Area.**—Brentford Urban District.

3. **Address.**—F. Turner, F. R. Hist. Soc., Public Library, Brentford.

4. **Collection Stored.**—Brentford Public Library.

5. **Extent.**—**Prints,** about 500; **lantern slides,** about 500; **negatives,** about 500.

BRISTOL.

Proposals for Record work were discussed by the Bristol Archæological Society prior to 1908, but the project fell through; the matter was then taken up by the Bristol Amateur Photographic Association. The Records are mounted on cards 18″ × 12″, and arranged in albums according to locality and subject. The subjects are Architecture, Street Scenes, and beautiful or interesting Sites. The collection comprises a number of lantern slides. It is retained by the Association, with the idea of possibly storing it later on in the Public Library.

CARDIFF.

Prior to December, 1908, the Cardiff Photographic Society (no longer in existence) were engaged in photographic survey record work in connection with the Public Libraries, the records obtained being deposited at the Central Library; which bore the cost of mounting and storage (see now under Wales).

CLEVELAND.

It is stated in *Photography and Focus* for October 21, 1913, that a Record and Survey of Cleveland is in course of organization, with Mr. A. Bennett, "Springroyd," The Avenue, Linthorpe, Middlesborough, as Hon. Sec.

COVENTRY.

1. **Name.**—Coventry Photographic Survey and Record.
2. **Area.**—Coventry and District.

3. **Address.**—P. H. Wenham, 34, Sir Thomas White Road, Coventry.

4. **Collection Stored.**—Coventry Public Library.

5. **Extent.—Prints,** 150; **lantern slides,** none; **negatives,** 100.

7. **Other Information.**—Lists of desired records are issued, comprising mainly Architectural and Topographic subjects, though from the rules it appears that "any other objects or scenes of local interest are acceptable."

DARWEN.

In the *British Journal of Photography* for November 21st, 1913, it is reported that the local Photographic Association have presented to the Corporation, to be placed in a position accessible to the public, 89 Sulphide-toned prints, representing notable recent happenings.

DUNDEE.

1. **Name.**—Dundee and East of Scotland Photographic Association.

2. **Area.**—Dundee and immediate neighbourhood.

3. **Address.**—V. C. Baird, Gowanbrae, Broughty Ferry, N.B.

4. **Collection Stored.**—The collection, when complete, will be stored in the Victoria Art Gallery, Dundee.

5. **Extent.—Prints,** about 2500 (at the end of 1908).

6. **Subscription.**—None. The Dundee Corporation have granted £150 towards the cost of the Survey, and this it is anticipated will suffice to complete the scheme so far projected. Three plates (presumably unexposed plates) are given for every negative accepted and, if desired, one print from that negative.

7. **Other Information.**—When the Survey, as now projected, is complete, prints will be bound into books with descriptive matter and kept in the Public Library, a duplicate set of books being put away for future use; the prints are all direct, from ¼-plate to 12″ × 10″, and some larger; the classification will be under the headings of Architecture and Street Scenes, Trade and Commerce, Religious, Educational, Municipal, Harbour, Military and Police.

EALING.

1. **Name.**—Ealing Photographic Society.

2. **Area.**—Ealing.

3. **Address.**—T. W. Bartlett, 20, Craven Avenue, Ealing.

4. **Collection Stored.**—Town Hall, Ealing.

EDINBURGH.

1. **Name.**—Edinburgh Photographic Society, Survey Section.

2. **Area.**—Edinburgh and District.

3. **Address.**—Andrew A. Gibb, 18, York Place, Edinburgh.

4. **Collection Stored.**—At present in the Society's Rooms: ultimately to be deposited in the City Museum.

5. **Extent.—Prints,** over 1000.

EXETER.

1. **Name.**—Pictorial Record Society of Exeter.

2. **Area.**—The City and County of the City of Exeter.

3. **Address.**—H. Tapley-Soper, City Librarian, Exeter.

4. **Collection Stored.**—City Reference Library, Exeter.

5. **Extent.—Prints,** 230 (carbon enlargements); **lantern slides,** none; **negatives,** about 600.

6. **Subscription.**—None. An annual grant of £50 is made by the Corporation, and operating rooms are supplied for the use of workers.

7. **Other Information.**—The subjects represented include: Architecture, Topography, Coins, Tokens and Seals, Means of Communication, Textile Fabrics, Fortifications, Tombs, and Inscriptions, Trade Marks, Maps, Metal Work, Military Uniforms and Arms, Public Documents, Passing Events, Stained Glass, and Portraits. The different sections of work are allocated to special workers.

KINGSTON-UPON-THAMES.

1. **Name.**—Kingston-upon-Thames Photographic Society, Survey Committee, acting in conjunction with the Public Library.

2. **Area.**—Kingston-upon-Thames, and neighbourhood.

3. **Address.**—B. Carter, Public Library, Kingston-upon-Thames.

4. **Collection Stored.**—Public Library, Kingston-upon-Thames.

5. **Extent.—Prints,** 420; **lantern slides,** 75; **negatives,** 56.

7. **Other Information.**—Prints are filed according to size, on mounts 7″ × 7″ (stiff paper), 14″ × 10½″ and 18″ × 14½″ (sunk cardboard). The 7″ × 7″ mounts are punched and kept in boxes fitted with a rod; the larger mounts are kept loose in pamphlet boxes; the subjects

represented are Architecture, Topography, Passing Events, Documents, Maps, etc. The Surrey Survey classification is used. The prints are mounted at the cost of the Library.

LONDON.

1. **Name.**—Committee for the Survey of the Memorials of Greater London.

2. **Area.**—Metropolitan Police Area (approximately).

3. **Address.**—Percy Lovell, 27, Abingdon Street, Westminster, S.W.

4. **Collection Stored.**—Partly with the London County Council and partly at 27, Abingdon Street, Westminster, S.W.

5. **Extent.—Prints,** 3000, including drawings.

6. **Subscription.**—£1 1s. per annum.

7. **Other Information.**—The collection comprises photographs and architectural drawings. Volumes are issued from time to time, dealing with special districts, and with notable buildings, and in the publication of some of these the Society acts in conjunction with the London County Council. The Society also interests itself in securing the preservation of any specially interesting buildings, which may be threatened with demolition or disfigurement.

LONDON.

The London County Council possess in their Library a number of photographs of a "Record" character, but the library is not open to the public. A small selection of photographs and architectural drawings were shown at the Annual Meeting of the Committee for the Survey of the Memorials of Greater London, held at Bankside on December 4th, 1913. The photographs were in most cases whole-plate bromides, unmounted. Some larger objects, such as ornamental ceilings, were represented by a number of sectional photographs mounted together, to give a complete representation on a large scale. It is regrettable that the County Council, who must possess a large number of valuable photographic records, in no sense of a private character, have not, so far, seen their way to make them publicly accessible, even if only to properly authenticated students.

OXFORD.

Some years ago the Oxford Camera Club started a Survey, but it soon lapsed ; Mr. H. Minn, of 31, Woodstock Road, Oxford, has continued making ¼-plate negatives, now numbering several hundreds, representing the exterior architecture of the city, and has made ½- or whole-plate enlargements on ozobrome : he would be glad to co-operate with others in setting the work upon a permanent and organized basis.

RICHMOND, SURREY.

1. **Name.**—Richmond (Surrey) Photographic Survey or Record Society.

2 **Area.**—Borough of Richmond, which includes Kew and Petersham.

3. **Address.**—Albert A. Barkas, Public Library, Richmond.

4. **Collection Stored.**—Richmond Public Library.

5. **Extent.—Prints,** 1150; **lantern slides,** 300; **negatives,** 600.

6. **Subscription.**—None. Part of the expense is borne by the Library.

ROTHERHAM.

About 1895 the Rotherham Photographic Society entertained the idea of taking up a scheme of Survey and Record work on the lines followed in Warwickshire, but no organized work was done. There is a photographic room at the Rotherham Public Museum, Clifton Park, on the walls of which a number of prints of a "record" nature are displayed.

WIMBLEDON.

1. **Name.**—John Evelyn Club for Wimbledon.

2. **Area.**—Wimbledon and Merton.

3. **Address.**—G. C. Druce, Ravenscar, The Downs, Wimbledon.

4. **Collection Stored.**—When complete, at the Free Library, Wimbledon.

5. **Extent.—Prints,** 275. When completed, the collection is expected to number about 400.

7. **Other Information.**—The Survey was undertaken in November, 1912, by a Photographic Sub-Committee of the Club "for the purpose of organizing a systematic survey of old property in Wimbledon and Merton." Apparently its activities are not intended to be continuous.

WOOLWICH.

1. **Name.**—Woolwich Antiquarian Society.

2. **Area.**—North-west Kent and South-east London.

3. **Address.**—F. C. Elliston Erwood, Jesmond Dene, Foxcroft Road, Shooters Hill, Plumstead, S.E.

4. **Collection Stored.**—With Mr. Elliston Erwood.

5. **Extent.—Prints,** none; **lantern slides,** 300; **negatives,** none.

6. **Subscription.**—3*s.* 6*d.* per annum.

SECTION B.—FOREIGN AND AMERICA

BOSTON, U.S.A.

It is stated in W. Jerome Harrison's *Notes upon a proposed Photographic Survey of Warwickshire,* 1890, p. 3, that "the idea of a local photographic survey has been carried out to some extent by the Boston Camera Club, in America. . . . The Boston Society has secured a number of negatives of what they call 'Old Boston'; and from these negatives lantern slides have been prepared."

BRUSSELS.

There has been established at Brussels (1, rue du Musée), in connection with the International Institute of Bibliography, an International Institute of Photography. The object of the Institute is not only to collect, systematize, and catalogue information about photography, its theory, practice, applications, and history; but also to collect photographs and photo-engravings. The Institute—which receives a government grant for its support—aims, in its Répertoire Iconographique Universel, at covering the widest possible field, "the illustration of human activity in all its manifestations," and survey photography is, therefore, only one department of its work, and in the nature of the case the collections in this section can never attain the completeness of local surveys. The photographs are mounted on cards or sheets, placed in folders, and stored in vertical file drawers. They are classified by the Decimal system, in use by the Institute for its huge international bibliography on cards.

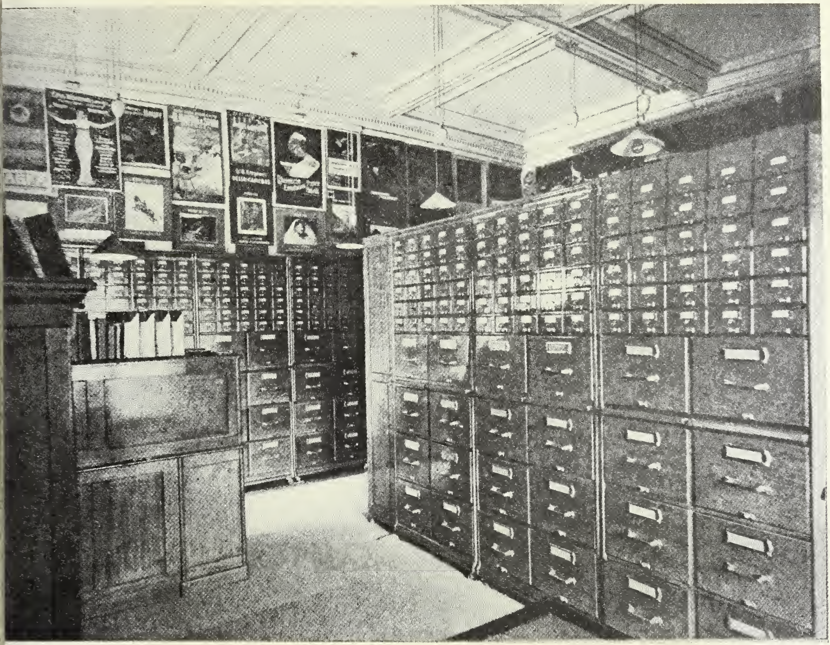
CUMBERLAND COUNTY, PENNSYLVANIA, U.S.A.

The Hamilton Library Association of Carlisle, Pa., has for one of its objects "the elucidation and preservation of the history of Cumberland County," and it is now making "as complete a systematic photographic survey of the county as possible." Communications may be addressed to Professor Charles F. Himes, Chairman of Photo-Record Committee, Carlisle, Pa.

NOTE.—Prof. Himes, who kindly furnishes the above information, states that while American County Historical Societies are, as a rule, glad to get photographs of local or general historical interest, and some have interesting collections, few are engaged in systematic record work, with collections properly classified and catalogued for reference. They depend for the most part on amateurs, and photographs are often furnished with some of the most desirable historical data wanting. Still, accumulations are being made that will be of great historical value.

GERMANY.

An organization was formed in 1911 under the title of the *Staatliche Stelle für Naturdenkmalpflege in Deutschland* (State Department for the care of Nature



[Facing p. 30.

FIG. 2.—International Institute of Photographic Documents, Brussels.

Monuments in Germany). It is under the control of the Minister of Agriculture, and is managed by Professor Dr. Conwentz, Old Botanical Museum, Grunewaldstrasse 6–7, Schöneberg, Berlin. The collecting of record photographs forms a part of the work of this department, and the collection comprised in June, 1913, some 3000 volumes, 1200 photographs, and 500 lantern slides, illustrating mainly characteristic scenery, woods, tree-groups, quaint trees and the relations of plants, mountains, hill-groups, wells, waterfalls, wild animals, and their surroundings, etc.

The photographs are inserted (unmounted) between cardboard, and arranged according to countries and provinces.

CHAPTER III

INTERRELATION OF SURVEY ORGANIZATIONS AND RESPECTIVE FIELDS OF WORK

If the work of photographic survey and record be regarded, as we believe it will shortly come to be, as of such national value and importance that no part of the country and no phase of national life should be left out of the network of record organization, two problems immediately arise. How and where should the records be stored, and to what body or bodies most fitly belong the tasks of securing them and rendering them publicly accessible? It might be urged that, as the boundaries of the work are, or should be, coterminous with those of the country as a whole, a national body and a central collection offer the natural solution. This view was, in fact, taken when in 1897 the National Photographic Record Association was founded by Sir Benjamin Stone, whose whole-hearted work on behalf of Photographic Survey and Record can hardly be overrated in connection with record work in this country. It may be noted that the intention was not to discourage local collections, as is shown by the following extract from the circular of November 20, 1897, relating to the formation of the Society: "In conclusion, the Council wish it to be understood that there was no thought of competing or clashing with the excellent work of the same kind which is being so well done by the several County Survey Associations, such as those of Warwickshire, Worcestershire, Yorkshire, Cheshire, in their commendable efforts to form local collections, but rather a hope is entertained that such useful work may be encouraged by loans being made from time to time from the National Collection, before being deposited in the British Museum, of interesting pictures from other localities for the purposes of exhibition." The depository selected by the Association was the British Museum, and in the Print Room of that institution are now stored the records, approximately 4000 in number, which were collected under Sir Benjamin Stone's Presidency. It was found, however, that the work on a national scale was far too vast for one voluntary Society to undertake, and that localized Societies were being formed which could prosecute it with more effect, while such overlapping as naturally followed from the co-existence of a National and local Societies engaged upon the same work involved waste of energy and material.

The following reference to the subject in the *Library Association Record* for February, 1912, may here be quoted :—

" In planning fresh work, or establishing fresh societies for new areas, the question of the topographic unit for the collection is of primary importance, as the public value of the records will in large measure depend upon its proper solution.

" The area represented by any one collection should have some unity of nature ; its boundaries should be consistent with those of some recognized division of the country. It should not be too large for close relationship between the organizing society and the individual workers; nor so small that consultants be too frequently driven to supplement their references to one collection by references to another stored elsewhere."

The authors believe that both experience as to what has been done in this country and general reasoning based on the views expressed above (in which they concur), point to the county as the natural topographic unit, at all events in this country. In the case of very large or very populous counties, *e.g.* Yorkshire or Lancashire, some further sub-division may, of course, be advisable, while certain very large towns, *e.g.* Manchester or Liverpool, may form suitable units; but in the main they consider that the county will, better than any other method of division, be found to possess the characteristics suited to ensure on the one hand effective and vigorous work, and on the other, public value of the record collection as it accumulates. For the avoidance of overlapping, any area enclosed within another district should be excluded from the operations of the Survey dealing with the latter.

The questions of storage and classification are dealt with elsewhere; but here it may be noted that if the resources of such public institutions as our Public Libraries are to be invoked to give to the collections of records, through systematic classification and constant accessibility, their utmost usefulness, it is essential that these collections be planned on a sufficient scale to render them worthy of the expenditure of time, money, and storage facilities that will be involved, in order that the respective authorities may find justification for co-operating in the work.

The question by what body should the work of initiating and carrying on the work in any given district be performed is one which must be considered in relation to the peculiar features of that work. If these features be considered in broad outline it will be seen that, while they have a close association with the work of the photographer—amateur or professional—and consequently of photographic clubs and societies on the one hand, they have on the other no less close a relationship with the activities of such persons and associations as are concerned chiefly with questions of antiquarian, scientific, or literary research. If the aid of either class of interest fail to be secured, the work of Photographic Survey and Record can be carried on in but a half-hearted and ineffective manner.

The Photographic Society or Club, as such, takes as the chief aim improvement in the technique of its members ; it usually, and for obvious reasons, makes pictorial excellence in photographic work its goal. In Photographic Survey and Record work, however, the requirements are not quite so exacting as this ; fortunately it is so, for otherwise much valuable material would be unavailable. Nay, it is often the case that the processes by which pictorial excellence are secured in photographic work (partial suppression of detail, double printed atmospheric effects and the like) are detrimental, if not fatal, to the production of a useful record photograph. It is not suggested that technical excellence is unimportant in a record ; but a moderate degree of excellence suffices, and other qualities are called for which often do not accord with the methods of the pictorial worker.

The antiquarian scientific or literary society has, or should have, the keenest interest in the successful collection of records which will have value in connection with its work; but it does not necessarily or usually number among its members any great proportion of those who combine skill in the application of photography with knowledge of its special subject. Nor does any one Society cover the field which the ideal Photographic Record collection should do.

There further remains the vast array of unattached workers, more or less skilful, in photography, whom no existing Society, photographic or otherwise, has the means of reaching; and to enlist the practical sympathy and co-operation of such workers in Photographic Record (to whom, as shown in an earlier chapter, it has a special potential appeal) is to gain a number of valuable and indeed necessary allies.

If, then, no existing body is *en rapport* with all those whose various classes of interest must combine in record work, and if the support of all is requisite, the conclusion seems inevitable that the work can best be carried out by a body designed and constituted for the purpose. This conclusion is strengthened when it is considered that co-operation between a number of bodies, some in a more or less friendly way competitive, some with entirely differing aims and tastes, is essential.

The solution of the problem, alike in theory and as found in practice, lies in the formation of special Photographic Survey and Record Societies, to which may become affiliated on the one hand all those learned societies with whom they have aims in common, and whose guidance and direction is necessary, and on the other, the Photographic Clubs and Societies by aid of the skill of whose members the necessary work of actual record making is to be accomplished.

That such dual co-operation can be secured has been found by experience, which shows also that a special Survey Society, having no aims or interests conflicting with those of its component parts, is free from certain jealousies which might conceivably arise if any one Society, whether Learned or Photographic, sought, by claiming the aid of others, to place itself in a position of quasi-seniority.

The organization of such a special Society is dealt with in the next chapter ; here it will suffice if it be established that such a body must be the one best suited to carry on Photographic Record work.

It may be noted that acceptance of the principles enunciated above strengthens the case for selecting some such area as the county as the topographic unit for the collection of records ; for any multiplication of societies to an extent beyond that rendered necessary by circumstances tends to the frittering away in administration of energies that might be more profitably utilized in the actual work of collecting or making records, which after all is the ultimate goal of those interested in this movement.

But the foregoing arguments carry us a stage further. If co-operation of Societies, differing in their nature and objects, for a common aim be, as it has been found to be, so valuable an agent for effective work, is there not a strong case for co-operation between Record Societies themselves ?

The "survey point of view," once acquired, is rarely lost, and the fascination of survey work is for the worker a growing one; but workers often change their residence from one district to another, and may then, for lack of an organization to bring them into association with those having like interests in their new home, fail to find any outlet for their energies.

It often happens when treasure-trove in the shape of old photographs or negatives is found in one district, that it contains matter of great potential record value relating to another part of the country; if no means of transferring these records to the proper quarter exist, they are like to lapse into the state of the great quantity of extremely valuable matter existing merely as lumber. A growing body of experience as to methods of work is being acquired, but it is not co-ordinated. Keen workers at Photographic Record are often willing, by lantern lectures and the like, to assist in the formation of Societies to carry on the work in other than their immediate districts.

These and other possible aids to the development of Survey and Record Work throughout the country are shorn of much of their effectiveness unless there exist a central body to co-ordinate and combine the efforts of local Record Societies in like manner as the latter should do for their respective local Photographic Clubs and Learned Societies. Such a central body is in existence under the name of the Federation of Photographic Record Societies. It was formed in 1910, when the National Photographic Record Association was dissolved, and we would most strongly urge the desirability of all Photographic Record Societies in this country affiliating to and actively supporting it. Some good work has been accomplished by the Society, and much more remains to be done as soon as the necessary workers are found.

As already shown, the case for photographic survey work as an end in itself is clear and strong and definite, but the case becomes infinitely stronger when its relations are considered with the wider movement, so characteristic of our time, for the preservation of scenes of natural beauty, rare animals, plants, curious or interesting natural monuments, as well as monuments erected by man. In Prussia the "State Office for the Care of Natural Monuments in Prussia," founded in 1906, is a practical recognition of the idea that the first step to be taken towards the preservation of natural and artificial monuments is to record their existence. Photographic survey work is by no means merely concerned with the somewhat melancholy task, from this point of view, of recording scenes and objects of beauty and interest which have vanished, or which are vanishing; records of existing things are themselves undoubtedly a factor of no small importance in the preservation of that which is pictured for us by the camera. If politics be that portion of history which is happening under our eyes, then may we not claim for the camera a political as well as a historical *rôle?* This aspect of survey work is perhaps the one best calculated to bring home to survey officials and workers the fact that the value of the records as aids in preservation of that which is threatened is entirely dependent upon the accessibility of these records to the public, a matter dealt with elsewhere, but which is so closely bound up with these observations that a passing reference at all events seems inevitable. Records in private hands, badly arranged, and to which access is difficult, may to some very limited extent serve the purpose of the historian of the future, but can never be of the slightest avail in helping forward the movement for keeping the world about us as beautiful and as interesting as it may still, in spite of builder, manufacturer, miner, and the other multifarious iconoclasts of modern civilization, remain.

The work of the record photographer has also an important part to play in the growing movement for what are termed " regional " surveys, so strongly and eloquently advocated by Professor Geddes and others. The regional survey is a wider survey than the photographic. It includes practically every kind of record in respect of the region surveyed, but the photographic record is an indispensable part of the work. Whether the photographic survey is made a department of the larger regional survey, or whether where a photographic survey has already been formed in a district, it should remain as a separate organization, it is perfectly clear that the work should be in some way or other co-ordinated, and it is also highly desirable that all the records, whether photographic or other, should be accessible in one and the same place. And just as wherever there is a public library we believe that the public library is by far the best depository for the photographic records, so we believe that it will be found the best and most accessible abiding place for any other records of a district. Be that as it may, the work of the photographer has, and always will have, its own special technical side, and the mounting and storage of the photograph its own special problems; the writers hope however that the present volume may serve some useful purpose, not only in connection with photographic record, but in connection with the wider movement for regional record.

CHAPTER IV

INCEPTION AND ORGANIZATION OF A SURVEY SOCIETY

FOR the purpose of this chapter it is assumed that the county or some analogous area has been selected for the work of the proposed Photographic Survey and Record Society. Any modifications which may be necessitated by the choice of a different area will be sufficiently apparent.

The aims to be kept in view in the initial stages of the movement are to attract the notice and enlist the support of those individuals who regard photography as a means of preserving records of objects of interest and value, and to secure the co-operation of the existing Photographic and Artistic or Learned Societies in the area to be dealt with.

To gain the latter end it is highly desirable to make clear from the outset that the proposed Survey Society will not—in fact will be so constituted that it cannot—encroach upon the work of, or detract from the interest of members in, any existing society. For if this fact be grasped it will probably be found that considerable assistance and help will be forthcoming from quarters where otherwise hostility, latent or overt, would exist. Moreover, an organic relationship with such societies (preferably by means of affiliation, with direct representation upon the managing body) will be found of the utmost value as the work progresses.

It may not improbably be the case that apprehension will be felt by those societies whose work comprises the publication of illustrated transactions or pamphlets, lest the Survey Society should trench upon what they, not unnaturally, deem to be their province. For instance, the members of County Archæological Societies often get little or no return for their subscriptions beyond the receipt of copies of their transactions. If such societies can be induced to see that the existence of a Photographic Record Collection not only will not be made use of in a way competitive with their work, but will in fact prove for them a source of valuable material, their enthusiastic support will probably be secured.

If, as the authors think should always be the case, the collection of records in lantern slide form be made an integral part of the scheme, and if such regulations be made that these slides can be loaned for lecture purposes under proper conditions to suitable persons, the collection as it accumulates will appeal to a widened circle, and the movement may gain many supporters to whom the collection merely of prints would be a matter of comparative indifference.

Probably the first step towards the formation of a Photographic Record Society will be to get together a few persons interested in the project, and arrange to hold a preliminary meeting. Short letters should be sent to the local Press, announcing the proposed meeting, and inviting those who may be interested to attend. A circular letter should also be sent well in advance to the officials of as many local societies as possible, asking their presence, preferably as delegates from their respective societies. Letters of invitation should be sent also to prominent local people, and to any persons who may be thought likely to approve or assist in the formation of the society. Arrangements should be made beforehand for the chair to be occupied by some one of recognized position in the district.

At this preliminary meeting the objects, aims, and proposed methods of work should be explained by some one fully conversant with the subject, and after full and free discussion a resolution should be proposed, constituting all of those present who may be willing into a preliminary Committee. A provisional Secretary and Chairman should be appointed, and a date fixed for a further meeting. In the interim short notices and reports of the first meeting should be sent to all the papers in the county, intimating the date, time and place of the next meeting. Societies and individuals should be again circularized, and an endeavour made to secure before the meeting promises of membership from individuals, and, as far as possible, of support from societies and photographic clubs.

At this meeting resolutions should be passed :—

1. Definitely constituting the Society.

2. Determining its name and specifying its objects.

3. Appointing an Executive Committee, with a Chairman, Hon. Secretary and Hon. Treasurer.

The further initial proceedings are best left to this Executive Committee, who should, if time permit, at once hold a meeting and proceed to the framing of rules.

It will probably be found well at this stage to elect, in addition to the General Secretary, a Survey Secretary, within whose province will fall all matters pertaining to obtaining and registering the prints or lantern slides. He should, if possible, be the individual who has been most active in bringing about the formation of the Society. As its work grows he will find his energies sufficiently occupied, and the routine administrative work may well be relegated to the General Secretary. One of the most important points to be settled is the final custody of the Records and the arrangements for their public accessibility, for upon these points, as the next chapter shows, will depend in great measure whether the collection reaches its full destined measure of public utility. If the depository be a public building, such as a public library or museum, it will be found advantageous that the office of Hon. Curator be assumed by a responsible official, if possible the Librarian or Curator.

The rules of the Survey Society must, of course, be to some extent framed in accordance with circumstances; but experience has shown that in several respects the conditions of all Survey Societies will be alike.

Perhaps the most useful course here will be to give specimen rules, based upon several years' experience of an active County Survey, followed by comments on any points specially calling for mention.

RULES.

1.—This Association shall be called "THE PHOTOGRAPHIC SURVEY AND RECORD OF . . ."

2.—The work of the Association shall be to preserve, by permanent Photographic Process, Records of Antiquities, Anthropology, Buildings of Interest, Geology, Natural History, Passing Events of Local or Historical Importance, Portraits of Notable Persons, Old Documents, Rare Books, Prints, Maps, and Scenery, so as to give a comprehensive Survey of what is valuable and representative in the COUNTY OF . . .

3.—The Association shall consist of Photographic and other Societies, Honorary and Individual Members, with a President or Vice-Presidents.

4.—The Council may elect as an Honorary Member any Individual Member who shall, in their opinion, have rendered to the Association such services as are deserving of special recognition, and who is no longer able to take an active part in the work of the Association.

5.—Societies or Candidates for election as Individual Members may be proposed by any Member or Delegate. Their election shall be vested in the Council, and the Subscription shall be Two Shillings and Sixpence for each Delegate sent by a Society, and Five Shillings for each Individual Member. A payment of One Guinea by an Individual Member shall cover Five Years' Subscription.

6.—The business of the Association shall be transacted by a Council, which shall consist of a Chairman, who shall not hold office for more than three years in succession, Local Vice-Chairman, Hon. Secretaries (Survey and General), Hon. Treasurer, Hon. Curator or Curators, not more than two Delegates from each Associated Society, and not less than six Ordinary Members. The Council for the time being shall have power to call Special Meetings, make Bye-Laws and do all necessary acts for carrying out the Rules and promoting the interests of the Association.

7.—The Annual General Meeting shall be held in March, when a report by the Council (including Sectional

Committee Reports, if any), and audited statement of accounts for the year ending December 31st preceding shall be submitted, and the President, Vice-Presidents, other Officers, the Auditors, and Non-Delegate Members of the Council, shall be elected for the ensuing year. Voting shall be by Ballot. Nominations shall be in writing and signed by at least two members, and shall be in the hands of Hon. General Secretary seven clear days before the Meeting; but Societies shall elect their own Delegate.

8.—At every General Meeting the chair shall be taken by the President, or, failing him, by a Vice-President, or if no Vice-President be present the Chairman shall be appointed by the Meeting.

9.—Meetings of the Council shall be held every alternate month and at such other times as may be necessary. Five shall form a quorum. The Council shall have authority to appoint SPECIAL COMMITTEES with power to add to their number.

10.—In the event of the death or resignation of any Officer or other Member of the Council, the Council shall have power to fill the vacancy, except in the case of a Delegate of a Society, when that Society shall appoint a successor.

11.—PHOTOGRAPHS (including Lantern slides) shall be approved by the Council before acceptance. Prints must be sent in unmounted or on the regulation mounts.

12.—These Rules shall be altered only at an Annual Meeting or at a Special General Meeting convened for the purposes, and notice of any alteration shall be sent out with the circular convening the Meeting fourteen clear days before the date thereof.

13.—The General Secretary, by direction of the Council, or on the written request of not less than ten Members, specifying the business, shall convene a General Meeting not later than four weeks after receipt of such direction or request.

NOTES ON THE FOREGOING RULES.

RULE 1. The question of using the words "Survey and Record" requires some consideration. If the work of the Association is likely to be confined to the collection of Records (unconnected at the time they are secured by any definite plan) the word "Record" alone will suffice. The dual meaning of the word "Survey" has already been touched upon. Here it need only be noted that the photographic survey of a district (using the word in the sense assigned to it in this book) has many features of value, and if it is intended to make the organization of systematic photographic work a branch of the Society's activities it will be well to indicate the fact in its title.

2. The definition of the Society's aims should be comprehensive enough to exclude no useful *photographic* record; at the same time, an advantage attaches to setting out the branches of its proposed work in some detail. This rule, therefore, must be framed with the utmost care to avoid, on the one hand, vagueness, and on the other the inferential exclusion of useful matter. If arrangements of a satisfactory and permanent nature have been made for custody and accessibility of the prints, this rule may with advantage be extended to cover these points.

3. It will be noted here that prominence is given to the membership of Photographic and other Societies. The importance of this is sufficiently obvious. There is no need to restrict the list of Vice-Presidents. It may usefully comprise the names of all the Members of Parliament, Mayors of Boroughs, Chairmen of District Councils, etc., who are willing to accept office: since the duties are nominal and there is no definite obligation to subscribe to the funds, the refusals to patronize the Association will, if the request be tactfully preferred, be probably few in number.

4. This rule is not a necessary one, and if included it will not probably come into operation in the early stages of the Society's existence. Perhaps the position of Honorary Members and their rights as to voting, election to Council, etc., should be more clearly defined than is done in the specimen rule.

5. The rates of subscription should not be higher, at all events at first, than, with a moderate membership, will suffice to defray the costs of printing and postage, and the subscription of affiliated societies in particular should be little more than nominal. Some revenue may be looked for in the shape of donations from Vice-Presidents. The adhesion of every possible society should be aimed at, and frequently the funds of the smaller societies are not in a condition to admit of any large payment, while often it will be found that the delegate has the honour of paying his Society's contribution, and it is obvious that in such a case the tax should be a light one. A provision for compounding by individual members, either by way of Life Membership (which, however, entails at least a moral obligation of perpetuity on the Society) or preferably as indicated

in the Model Rules, is often taken advantage of by many whose interest, if once aroused, is sufficient to induce them to pay a fair sum down, but who do not care to be troubled by recurrent annual reminders for the payment of small sums. It will probably be found convenient to give discretion to the Hon. Secretary to provisionally accept members, reporting their names for confirmation at the following Council Meeting.

6. The election of Local Vice-Chairman is designed to provide an official position for men of influence in parts of the county other than that in which the administration is centred; their active co-operation in the work, if it can be secured, will counteract a possible tendency towards unduly centralizing the activities of the Association, and when Annual Meetings are to be held in their parts of the county they can be looked to for arousing local interest and securing a good audience. It is a moot point whether the election of Chairman and Local Vice-Chairman of Council should take place at the Annual General Meeting or at the first Council Meeting thereafter. In any event a Council Meeting should immediately follow the Annual Meeting, when any necessary Special Committees can be formed and arrangements made for the organization of excursions, etc., for the ensuing year, and for the printing and circulation of the Annual Report.

7. The Annual General Meeting will, if properly organized, be found one of the most effectual means of advertising the Society's existence. This point is dealt with in more detail in a later chapter, but here it may be noted that as far as possible the arrangements for Annual Meetings should be such that they be held in succession in all the important centres of population

in the county. Too great emphasis cannot be laid on the necessity for securing public recognition of the Association as one for the whole county: otherwise there will be a tendency for it to drift into the position of being regarded as a local society, of interest only to those residing in the immediate neighbourhood of the collection.

8. If the Association be so fortunate as to secure for its President a man not only of recognized position (*e.g.* a Lord-Lieutenant or prominent Member of Parliament), but one who takes an intelligent interest in its work, the Presidential Address will be a valuable asset. As a rule the Annual Meeting can be made a fruitful recruiting ground. The organization of Exhibitions and Lantern Lectures in connection with the Annual Meeting is dealt with in a succeeding chapter.

9. The formation of Special Committees will be found a convenient means of bringing together those whose interests are mainly confined to special branches of the work, and the respective Secretaries, if suitable men be chosen, should prove valuable allies to the Survey Secretary in the matter of securing existing Records, as also in the direction of getting Records taken. Membership of such Special Committees is, of course, not confined to the Council.

11. It is better that all prints be sent in unmounted and that lantern slides be not masked or bound. The work of mounting prints and affixing title slips, as also that of masking, titling, spotting and binding lantern slides is, for the sake of uniformity, best kept in the hands of one person. This may be either the Survey Secretary or the Curator. If the collection of slides

becomes extensive their registration, binding, etc., may with advantage be undertaken by a Special Officer.

The rule as to approval of photographs must be enforced with tact. It is, of course, desirable to discourage the proffer of prints by an unsuitable process, and some supervision must be exercised over the subject-matter of records. A refusal may, however, alienate a possibly valuable contributor.

If the objection be the fugitive nature of the print, it may be accepted pending the acquisition of the record in a more suitable form, and if it be judged unsuitable for the collection, it can be retained as an illustrated memorandum.

A wide latitude should be in the hands of the Survey Secretary, provided he can (as should of course be the case) be trusted to exercise it with discretion.

Annual Reports.

The Annual Report will probably be prepared in draft by the Survey Secretary. It serves as a means of bringing to notice branches of work specially requiring attention, and being frequently more or less fully quoted in newspaper reports, has, if wisely used, valuable possibilities in the direction of securing publicity.

It will, of course, be revised at a Council Meeting shortly preceding the Annual Meeting, as will also the Sectional Reports; both then go to the Members in the name of the Council.

The Agenda of the Annual Meeting will comprise—

Reading Notice convening the Meeting.

Minutes of last Annual and of any Special General Meetings.

Reading of the Council's and the Sectional Reports.

Presentation of Statement of Accounts.

President's or Chairman's Address, based on moving a Resolution that the Report and Accounts be adopted, printed in abstract, and circulated among the Members.

Election of Officers.

Alteration of Rules, if necessary.

Votes of thanks.

One of the first duties of the new Council will be to arrange for the printing and circulating of the Annual Report. The actual work is best carried out by a small Editorial Committee, consisting, say, of the Officers.

Considerations of expense will probably necessitate some abbreviation of the Reports and some condensation of the speeches made. If the printing of the Report be arranged for beforehand with the office of a local newspaper it will probably be possible to ensure the presence of a reporter and the appearance of a good report of the meeting in the local press.

By way of suggestion an outline of a printed Annual Report (to occupy 16 to 20 pages octavo) is appended.

Title page, with brief statements giving aims and methods of work, and showing where the collection is housed, and how accessible to the public.

Paged Contents List.

Introductory note by new Council, emphasizing desirable directions for new work, etc.

Reports of (*a*) Council.
 (*b*) Sectional Committees.
 (*c*) Delegates to other Societies, if any.

Statements of Accounts.

Report of Annual Meeting and President's Address, and extracts from newspaper comments.

List of Officers, Council (including affiliated Societies and their Delegates) and Sectional Committees, giving addresses of Officers and Sectional Secretaries.

Brief Sectional Classification of subjects represented or to be represented in the Collection.

List of Members with addresses and, if thought desirable, analyzed statement of their Contributions to the Collection, under the headings

Past year	Prints. Slides. Negatives, lent or given.
Total to date	Prints. Slides. Negatives, lent or given.

CHAPTER V

THE MOUNTING, LABELLING AND STORAGE OF SURVEY PHOTOGRAPHS

THE MOUNT

Material.—The older Surveys employed cardboard mounts, usually with sunk and bevelled openings. Artistically, perhaps, nothing could be better, but the great bulk, weight, and cost of good-quality cardboard mounts (including the increased cost of storage) practically puts them out of court for large collections; nor will they stand the handling to which survey prints must be expected to be subjected, the legitimate handling due to use. The corners of cardboard mounts are, of course, particularly liable to wear and to be broken. In the latter event they should be repaired by the method shown in Fig. 3, which is sufficiently explanatory; the method is equally applicable to the repair of paper mounts. As regards the protection afforded to the surface of the print by the sunk mount, the danger of damage by rubbing when the sunk mount is not employed, and where ordinary care is exercised, is so very slight that it may be disregarded. The authors have not yet seen a case of damage of this kind in collections of prints mounted on paper; moreover, the protection afforded by the sunk mount is in many instances more apparent than real, owing to the tendency of the cardboard to rise in the centre, thus bringing the middle portion of the print to a level with the surface of the upper mount, unless the opening is small or its depth considerable. There is also the danger, in careless consultation, of damaging the print by digging the corner of a mount into the corner of the sunk opening below.

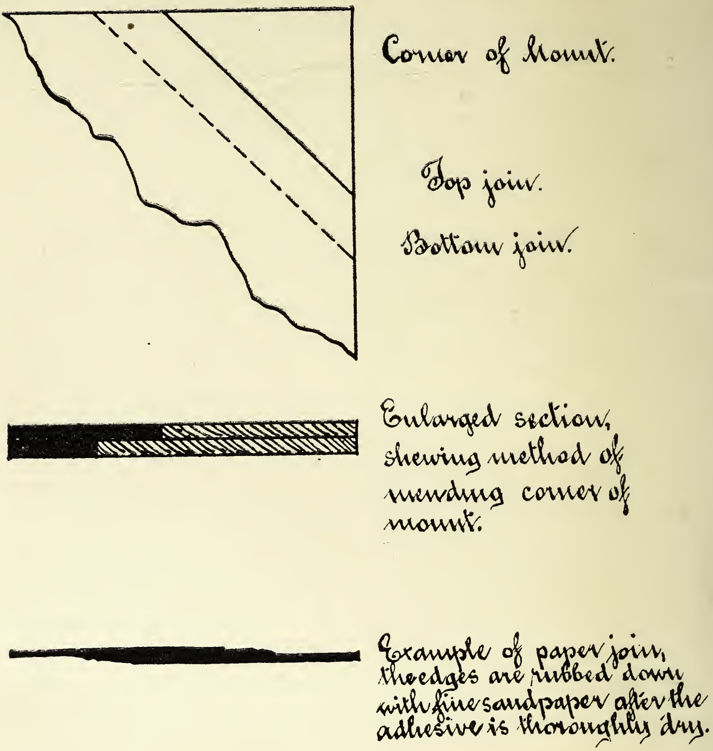

Corner of Mount.
Top join.
Bottom join.
Enlarged section, shewing method of mending corner of mount.
Example of paper join, the edges are rubbed down with fine sandpaper after the adhesive is thoroughly dry.

FIG. 3.—Method of repairing a cardboard mount.

The best and strongest mount material for Survey purposes is unquestionably paper; would it were as easy to specify precisely *what* paper. There is no single problem concerned with Survey and Record matters which has given the authors, and the Photographic Committee of the Surrey Survey, which devoted a good deal of time and consideration to the subject of a suitable paper, some years ago, so much trouble and worry as this. The market is flooded with various popular "art papers," but extended investigation leads the authors to the conclusion that most of these papers are quite unsuited to the purposes of photographic record. A certain bulk is desirable in a mount; the popular art paper is generally bulky, but its bulk is like that of the fat man, not of muscle which is strength, but of superfluous adipose tissue, which is weakness. The composition of two papers may be precisely the same, but one may be featherweight and the other buky, with resulting loss of strength, due to the fact that in the bulky paper "the fibres are as far apart from one another as possible, and the cohesion of fibre to fibre is reduced to a minimum" (Sindall, R. W., *Manufacture of Paper*, 1908, p. 233). In addition to this primary cause of weakness, the presence of various mineral substances, such as china clay, sulphate of lime, agalite, and other inert mineral substances, are very deleterious, "lowering the quality of paper, not so much in promoting the actual deterioration of paper by any chemical reaction with the fibres, as in making the paper less capable of resistance to the influence of atmospheric conditions and ordinary usage. . . . In the case of imitation art paper, which contains 25 to 30 per cent.

of its weight of clay, the strength and resistance of the sheet is reduced to a minimum. The paper falls to pieces if slightly damped, the felting power of the fibres being rendered of no effect owing to the weakening influence of excessive mineral matter" (*Ibid.*, pp. 234–5).

More vital in this connection than the effect of the texture of or impurities in the paper on the wear of the mount itself is the effect on the condition and durability of the photographic print which it carries. The print after all *can* usually be removed from the mount, but once degradation has set in in the print, owing to chemical action on it of some ingredient or ingredients in the mount, it is difficult, often impossible, to remedy the mischief or even to arrest it. Here is a case in which prevention is not merely better than cure, it is prevention or nothing. The most general ingredient in paper likely to injuriously affect the print is hyposulphite of soda, and it is, therefore, essential to select a paper which does not contain hypo, or as that is unfortunately almost a counsel of perfection, a paper in which hypo is present in such minute quantities that it can hardly exert any chemical action on the print. There are several well-known tests for hypo, which are given below. Another undesirable ingredient is iron, if present in any appreciable quantity; cellulose has a strong affinity for iron, and iron salts are used for the toning and colouring of paper.

When at length a satisfactory, or perhaps we had better say, the least unsatisfactory mount paper has been secured, it will probably be found that sooner or later the supply will cease, the paper disappears from the market, and the whole weary search for a suitable paper has to begin again. Now that photographic record is coming to the front, and its importance, however tardily, becoming recognized, it is hoped that this vitally important matter may receive adequate attention. Mr. Brothers, in his *Photography*, 1898, pp. 123-4, observes that "Too little attention has, from the first discovery of photography, been given to the best way to mount photographs"; as regards the mountant and the process this hardly any longer applies—dry mounting seems to be a complete solution of this part of the problem—but if the remark be referred to the mount itself it is still true. We are not aware that any complete investigation has yet been made into the factors governing the permanence of the *mounted* print, and yet it is high time in the interests of all record work that such an investigation should be undertaken. This appears to the authors to be a task which the Federation of Record Societies might well set before itself for immediate action, either alone or preferably in conjunction with the Society of Arts, which might very likely supply the funds for the investigation. Pending the results of the inquiry, the various Record Societies, acting through the Federation, should agree to use the same brand or make of paper, and so provide a demand sufficient to justify the mill which manufactures it keeping it permanently on the market.

The mount at present in use by the Survey of Surrey is a composite one, consisting of two papers glued together. The under and principal paper is that known as "Sultan Mecca," obtainable in sheets 37″ × 23½″ from Messrs. Butcher and Sons, Farringdon

Avenue. The colour being grey, and not harmonizing well with prints, it is covered by a vandyke-brown or sage-green art paper, the particular specification being "288 Mill Art Cover Paper, 67 lbs. to the ream, 504 flat, in sheets 34″ × 27½″"; it is made by Messrs. Thomas and Green, Ltd., 196, Upper Thames Street. The combination makes, of course, a stiffer and stronger mount than any single sheet of the same thickness and quality.

Tests for Impurities.—Trouble due to the presence of *hypo* in the paper or cardboard of the mount acting on the print does not as a rule make itself apparent for some time. The tests for its presence are many. The mount should first be cut or torn up into small pieces, placed in a clean glass beaker, and boiled in distilled water over a sand-bath for five or ten minutes; or boiling distilled water may be poured over the pieces and these allowed to soak in the water until cold. The solution should then be filtered, and labelled F; it is known as the filtrate.

Care should be taken to have the re-agents used in testing absolutely pure; and two or even three trials should be made in cases of great doubt.

Tests for Hypo.—1. One of the very simplest tests is to add to a clean glass of distilled water a trace of potassium permanganate, so as to slightly tint the water a pink colour. Upon adding a few drops of the solution F, it is immediately rendered colourless if hypo is present.

2. The testing solution is made up of:—

Potassium carbonate . . .	10 grs.
Potassium permanganate . .	1 gr.
Distilled water . . .	20 oz.

Place a piece of the *dry* mount in a weak solution of the above; the original pinkish purple of the solution will become tinged with green if hypo is present. This is a delicate test.

3. Add a few drops of bichloride of mercury to a portion of the F solution; it will become milky if hypo is present.

4. Add hydrochloric acid to a portion of F, and gently warm; if hypo is present a precipitate of sulphur is formed, with the evolution of sulphur dioxide.

5. A portion of F added to a solution of lead acetate (sugar of lead) results in a white precipitate, which on boiling becomes black, indicating the presence of hypo; otherwise no precipitate is formed.

6. The F solution added to a solution of chloride of iron results, if hypo is present, in a reddish-violet coloration, which disappears on heating, or on standing for some time.

7. The F solution added to a nitrate of silver solution precipitates white silver theosulphite. This rapidly blackens in colour, owing to the formation of silver sulphide; but if only a small quantity of hypo is present ($\frac{1}{10000}$) a yellow precipitate is formed (Dr. Barron, in *Photo Times*, 1889).

8. A very dilute mixture of starch and iodine is a useful test. Upon adding the F solution the blue colour is immediately removed by the presence of hypo.

Test for Free Acid.—" . . . The presence of free acid in a paper is most undesirable, as it seriously attacks the cellulose, converting it into an oxidized form. This in course of time renders the paper so brittle as to destroy its fibrous character" (Sindall, *Manufacture of Paper*, 1908, p. 239). The presence of free acid can be detected by a piece of blue litmus paper wetted and laid on the mount. This is not, however, a reliable test, in the case of organic acids or their salts.

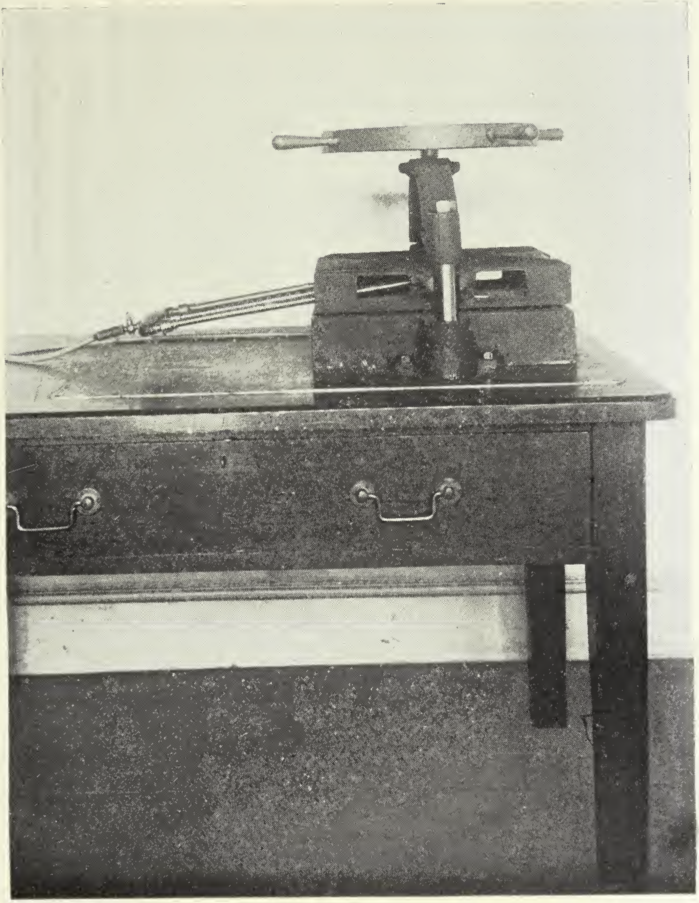
Test for Iron.—The iron in photographic mounting paper does not exist in sufficiently large quantities to exercise a deleterious action upon the print; but in making a choice of paper it is well to choose one having as little iron as possible, and the following test will be useful. The mount should be cut or torn up into small pieces and boiled with some distilled water in a glass beaker, as already explained, but the boiling should be prolonged until the quantity of water is considerably reduced and a concentrated solution obtained; this, upon cooling may have a few drops of hydrochloric or sulphuric acid added to keep the iron salts in solution. If a few drops of this prepared solution is then poured upon a perfectly clean white tile, and a drop or two of 5 per cent. solution of sulphocyanide of ammonia or potash is added, a slight pink or red coloration will prove the presence of iron. Some mounts contain colouring matter which comes out on boiling, and before a satisfactory test can be made, it may be well to first bleach this out; but mounts parting with their colour in any quantity in these circumstances are best discarded altogether.

Size of mount.—Almost every detail connected with the storage of records of any kind, whether book, manuscript, broadside, or print, is important, and few details more so in connection with the last-mentioned material than the size of the mount. If a Survey accepts prints of any and every size—and if it does not it will unquestionably lose a very great deal of material which it is not likely to possess in other form—the probabilities are that a large majority of the prints will be half and quarter-plate. To have a sequence of mount sizes to fit these and larger prints, each size with its appropriate mount, would be not only to add immensely to the labour of consultation, by multiplying the places in which one would have to look to find all the prints on a given subject, but would necessitate various sizes of boxes or drawers in which to store them, unless mounts of different sizes were thrown into a single series, an arrangement so obviously bad and awkward that nobody is likely even to consider its adoption. On the other hand, to select a mount which affords room for every print, large or small, is, in view of the certain preponderance—assuming the size of print to be unrestricted—of whole-, half-, and quarter-plate sizes, to add greatly and needlessly to the cost of both mount and means of storage. The Surrey Survey has compromised on two sizes of mounts; one, which takes nine-tenths of the collection, is $12\frac{7}{8}'' \times 10\frac{5}{8}''$; the other, which takes prints too large to go in the main series, is $16\frac{11}{12}'' \times 13\frac{3}{4}''$. The ordinary size will serve for any print up to the extra whole-plate, 10″ × 8″, allowing for the descriptive label being attached to the front of the mount. This mount, composed, as already described, of two makes of paper glued together (see above, p. 59), can be obtained from Messrs. Roffey and Clark, High Street, Croydon, cut accurately to size, at £4 4*s.* per 1,000, or 10*s.* 6*d.* per 100. It has already been suggested that the composition of the Survey mount should (after an inquiry) be standardized; the same remark applies to the sizes of mounts, as this bears directly upon the economy of the manufacture and supply of the receptacles to take them, whether boxes, portfolios, or drawers.

Methods of Mounting: The wet process.—The remarks made earlier in this chapter as to the necessity of guarding against possible action of deleterious substances in the mount of the photographic print dictate the first and fundamental rule for mounting by the wet process, viz.: *attach the print by the edges only.* "Talbot's method," says Mr. Brothers (*Photography*, 1899, p. 124), "was to attach the prints by their outer margins only. The importance of this is seen in the prints made by himself which still exist, and which, in some cases, have faded only at the parts touched by the mountant." Another advantage of this method, which is quite satisfactory in its results if done properly, is that removal of the print, if this should be found necessary, is rendered more safe and easy. There are no difficulties in edge-mounting, and with a little judgment and care, the print should look precisely the same as if it had been attached solidly to the mount. The materials required are, a few sheets of oiled paper, such as are used with the letter-copying press; a good white adhesive, free from acid—there are several specially prepared photographic adhesives on the market; and a tool to rub down the print, so that it is brought into perfect contact with the mount. There is nothing better for this purpose than a flat toothbrush handle, the brush end having been broken off, and the fractured edge smoothed with a file. The mount is laid flat upon a table, and the print placed in the exact position on the mount it is intended to occupy; the two top corners are then pricked off by a needle point, or marked or indented with a lead pencil; the marks made by a needle are more easily found on a dark mount than those of a pencil. The print is then taken and turned face down on a clean surface, such as an old newspaper—if freshly printed, of course it is unsuitable as a pasting surface. Very convenient for this purpose are old time-tables, and discarded magazines; as soon as one print has been pasted one turns over the page, and a clean surface is presented for the next print, and so through the book or pamphlet, with the advantage that one need take no trouble to avoid the possibility of any paste getting on the face of the print. The finger, which is better than a brush, is now dipped into the paste, and the edges of the print are carefully covered, without missing any part, to a depth from the outer edge of ¼″ to ½″ according to the size of the print. With a little practice it is possible to take up at a single dip or scrape the precise quantity of paste to serve for the mounting of the print. The adhesive should be of just that consistency which will cause it to adhere to the finger without dropping off. A duster or damp rag may be used to wipe superfluous paste off the finger as the work proceeds. A slight cockling of the edges as a result of this operation does not matter. The print is now quickly picked up, turned over, and the two top corners placed at the guiding marks on the mount, and a sheet of oiled paper is laid on the face of the print. The print is then smoothed out from the centre with the bone handle, and the edges rubbed down for a few seconds to secure complete contact. After putting it in a press or under a board and weight for a minute or so, it should be racked or stood on end; it is inadvisable to stack freshly mounted prints in any quantity, as one is more likely to get them "ballooned" by doing this than in any other way. It may be added that time will be saved when mounting many prints of the same size, to use mounts with cut-out openings of the standard sizes, thus enabling the position of the prints to be marked or pricked with rapidity and absolute accuracy.

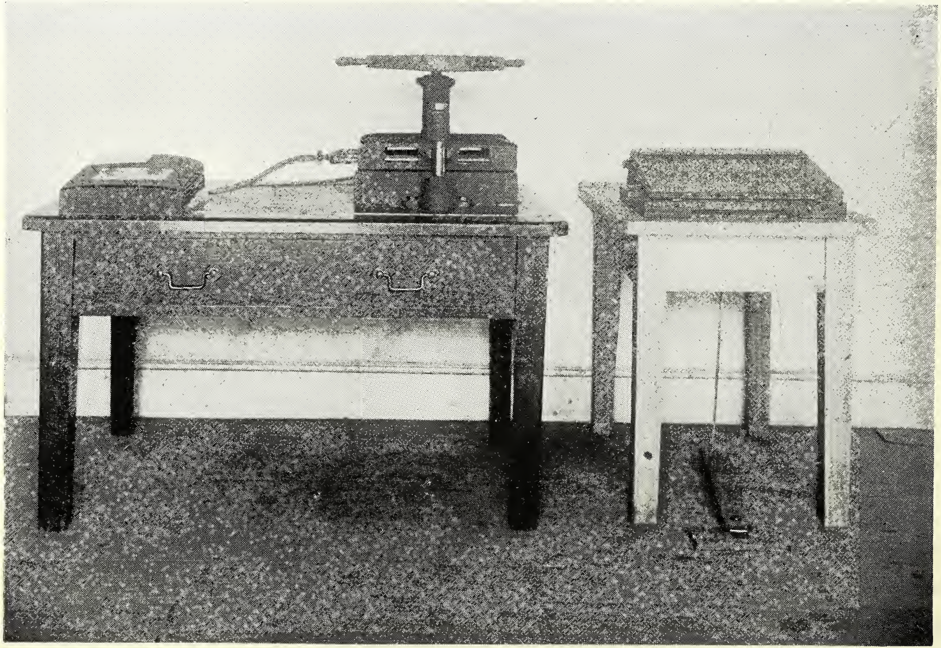
Methods of Mounting: The dry process.—The modern process of dry mounting is unquestionably *the* process for Survey work, and if the expense of a press can be borne there can be no better investment than this. The principle is that of fastening the print to its mount by means of a piece of specially prepared tissue laid between them, and rendered adhesive by the application of heat and pressure. The suitability of the process to Survey mounting lies in the fact that the tissue absolutely protects the print from any possible degeneration due to the presence of deleterious substances in the material of the mount.

There are several makes of dry mounting press on the market. Fig. 4 illustrates the "X" press, made by the Adhesive Dry Mounting Co., of 27 and 28, Fetter Lane, E.C.; it costs £5 5*s*. The machine resembles an office copying press, having a screw movement for pressing together the two horizontal metal plates. One of these plates, either the upper or lower, is made hollow to contain the heating arrangement; in the machine depicted the upper plate is made massive for this purpose. Into this plate is



[*Facing p.* 66.

FIG. 4.—Dry-mounting press. The bunsen burner is shown partly withdrawn from the hollow upper plate.



[*Facing p.* 67.

FIG. 5.—Dry-mounting outfit, consisting of press, and trimming desk, with treadle attachment.

slid a three-pronged bunsen burner, lighting at a number of small holes pierced in the upper side. A small thermometer for recording the degree of heat imparted to the plate rests in a little depression made to receive it on the top of the plate. Owing to the carelessness with which these machines are sent out by the manufacturers—a carelessness unfortunately typical of so many English houses—it is necessary to be sure that the heating apparatus is in order and properly adjusted before commencing operations. The flames should be true bunsen flames, consisting of a mixture of gas and air, shown by their being blue in colour, with no admixture of yellow light; and they should be of even length—about half an inch—so as to ensure equable distribution of the heat. In the case of the particular machine depicted, it was only when examination disclosed the fact that the gas injectors had been screwed in so as to point the wrong way round, that the secret of the refusal of the burner to do its work properly was discovered.

Fig. 5 illustrates the dry mounting press in association with the "Merrett" automatic trimming desk, with treadle attachment, an almost essential part of the equipment, if prints are to be mounted in any considerable number.

The following are the "Directions for use" of the Adhesive Dry Mounting Co. :—

"1. Place the print (which must be perfectly dry) face downwards and lay over the back a piece of dry mounting tissue as large as or a little larger than the print, securing it in position by a touch in the centre with the fixing iron, which has been heated to the temperature of an ordinary laundry iron.

"2. Turn the print face upwards and trim both print and tissue together to the required size.

"3. Lay the print, with the attached tissue, in position upon the mount, raise a corner of the print, allow the tissue to remain upon the mount, and press the tissue with the hot fixing iron, securing the print in its proper position.

"4. Cover the mount, with the attached print, with the zinc mounting plate (glossy for glazed prints, and matt for unglazed prints) and insert between the bed and heated plate of the mounting machine, and apply pressure for five or six seconds.

"5. Take out the print, flatten it by bending slightly, and put it under a light even weight to keep it flat."

For carbon and gelatine-chloride papers the proper temperature is stated to be 65 degrees Centigrade, or 150 degrees Fahrenheit; and for collodion, bromide, albumen, and platinum papers, 75 to 80 degrees Centigrade or 180 to 190 Fahrenheit; but in practical working with the general run of Survey photographs (carbons, bromides, platinums) it is found that a temperature ranging from about 70 degrees Centigrade to 90 or 95 will secure satisfactory results all round. The quickest and most convenient method of dealing with a number of prints is to start inserting prints in the press as soon as it is heated to about 70 degrees Centigrade, to go on, allowing the plate to get hotter, until the thermometer indicates 90 to 95 degrees Centigrade, then to put the gas out, and while the press is cooling down, there is time to mount about eighteen prints, when it will be time to relight the gas.

Methods of Mounting: Demounting.—It will occasionally be necessary to demount a print. If this is done by soaking great care should be used ; especially is this so with carbon prints which have never been hardened by an alum bath, as they have a tendency to run. Platinotypes, if of some years standing, are likely to be very rotten, probably on account of free acid. For these reasons the dry method of demounting, by means of a prising tool, has much to commend it. Nothing better for this purpose can be found than the stem of an old tooth brush, with the brush part broken off, and the stem fixed into a wooden handle, as shown in Fig. 6. The stem should be slightly curved, as shown in section at *b* in the diagram. In using it, insert the tool gently under a corner of the print to be removed, and gradually work it, without forcing, between the print and the mount, trying rather *to remove the mount from the print* than the reverse, and it will be found that the print will come away without damage ; a little of the surface of the mount may stick to the back, but that is of no practical consequence.

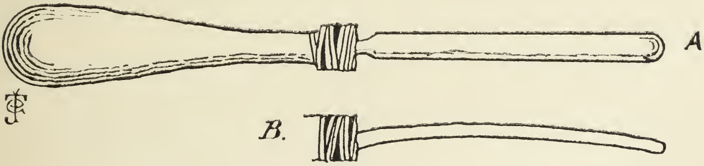


Fig. 6.—Demounting tool. *A* from above. *B* side view, showing curve.

The dry-mounted print may be removed as follows (we quote the makers' instructions) : "Place the back of the mount upon a metal plate heated to 220 to 250 degrees Fahrenheit,[1] and press the print gently with a piece of flannel upon one corner of the print. This corner will rise immediately from the mount. It will only take a few seconds to remove the whole print, which will not be affected in any way."

The Label.

A pictorial record without a label is useless or next to useless. And something more than a mere indication of subject is required in a photographic record. Such matters as the nature of the process employed, the time of day when the exposure was made, the direction of the camera, and the date, above all, the date, belong to the essentials of the record, and should be supplied whenever possible. At the same time the information asked for should be limited to what is really needed to make the print intelligible ; if the contributor is frightened by being asked for too much data; there is a risk of his supplying too little. An historical or antiquarian fact may add greatly to the interest of the print, but the survey label is not the place for detailed information of this kind. A reference to an account or description in some authoritative book or article is always worth making, when such information is at hand. But any source so named should *be* authoritative, and the references should be exact and precise. This last injunction is very necessary in view of the very general carelessness in this regard. Such bibliographical references should give: (1) the author, (2) the title, (3) if included in a collection, the title of the collection,

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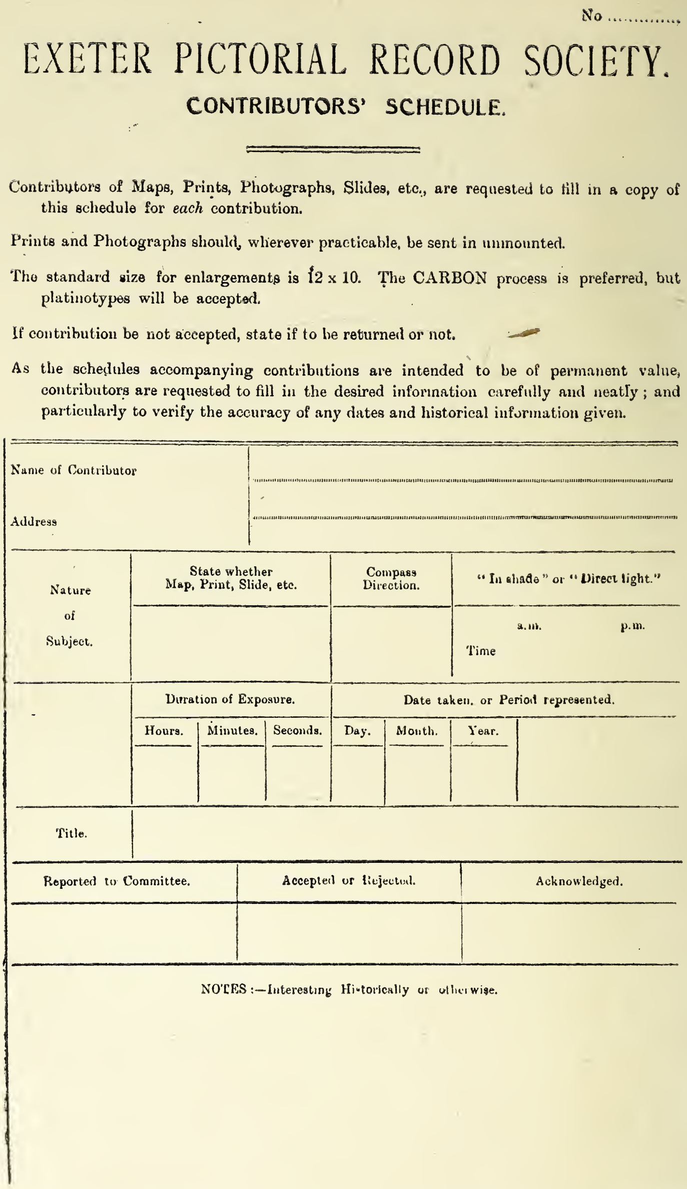
[1] *I.e.* 104 to 121 degrees Centigrade.

(4) the date of publication, and (5) the page reference; it is convenient to give the page reference in this form: pp. 320–341; one then obtains an idea of the length of the description, etc.

The older surveys made use of "contributors' schedules" of quarto size or thereabouts, often of four pages, the inner recto (p. 3) being reserved for the descriptive note or "note continued" as the case may be. A good type of this form of schedule is that of the Exeter Pictorial Record Society (Fig. 7). These schedules were sometimes bound with the prints. The adoption of a form of filing in which each print is kept as a separate entity, and considerations of convenience in transmitting, handling in the field, etc., has led to the general employment of a much smaller schedule, which can also be used as the label. This type of label is that of the Surrey Society (Fig. 8). The size of the label within the four black containing lines is that of the standard catalogue card, 5″ × 3″, so that if the prints are catalogued on cards—the question of the catalogue is discussed in the next chapter—the same form and arrangement of data may be followed. The matter appearing *above* the black line is cut off before the label is mounted. A separate slip is filled up by the contributor for each print. In some cases it will be desirable for the Survey secretary or other official receiving the prints to rewrite the label, owing to bad handwriting, misunderstanding of the form, or badly composed description; with a view of preventing such unnecessary duplication of labour, a few remarks on such portions of the form as are not self-explanatory are appended.



No ....

EXETER PICTORIAL RECORD SOCIETY.

CONTRIBUTORS' SCHEDULE.

Contributors of Maps, Prints, Photographs, Slides, etc., are requested to fill in a copy of this schedule for *each* contribution.

Prints and Photographs should, wherever practicable, be sent in unmounted.

The standard size for enlargements is 12 x 10. The CARBON process is preferred, but platinotypes will be accepted.

If contribution be not accepted, state if to be returned or not.

As the schedules accompanying contributions are intended to be of permanent value, contributors are requested to fill in the desired information carefully and neatly; and particularly to verify the accuracy of any dates and historical information given.

Name of Contributor	....
Address	....

Nature of Subject.	State whether Map, Print, Slide, etc.	Compass Direction.	"In shade" or "Direct light."
			Time a.m. p.m.

	Duration of Exposure.			Date taken, or Period represented.			
	Hours.	Minutes.	Seconds.	Day.	Month.	Year.	

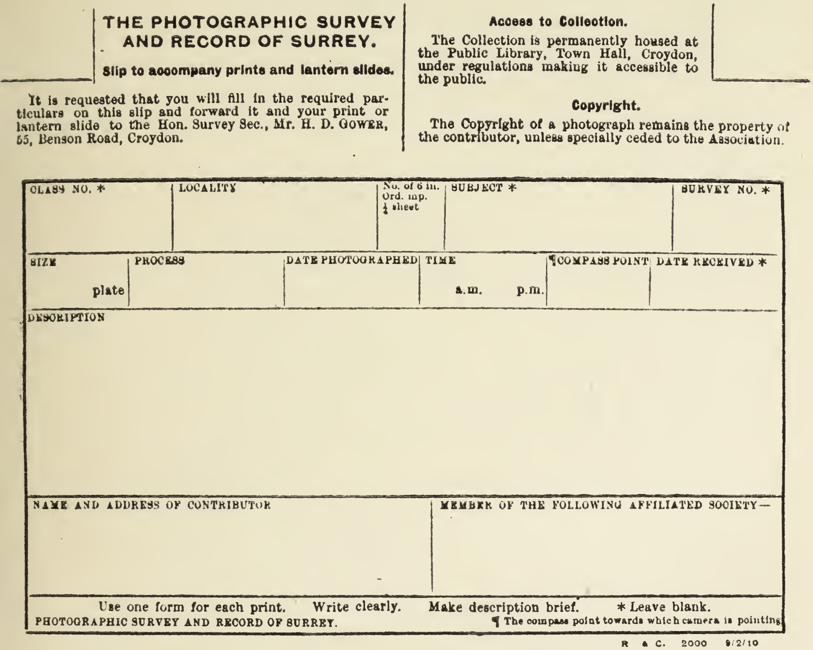
Title.	

Reported to Committee.	Accepted or Rejected.	Acknowledged.

NOTES:—Interesting Historically or otherwise.

FIG. 7.—Contributors' schedule, Exeter Pictorial Record Society. 8¾ in. × 10½ in. 4 pp. P. 3 headed "NOTES—*continued.*" Pp. 2–4 blank.

Class no.—This is the subject number or other mark by which the place of the print in the collection is fixed. It is added by the Survey secretary



THE PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.

Slip to accompany prints and lantern slides.

It is requested that you will fill in the required particulars on this slip and forward it and your print or lantern slide to the Hon. Survey Sec., Mr. H. D. GOWER, 55, Benson Road, Croydon.

Access to Collection.

The Collection is permanently housed at the Public Library, Town Hall, Croydon, under regulations making it accessible to the public.

Copyright.

The Copyright of a photograph remains the property of the contributor, unless specially ceded to the Association.

CLASS NO. *
LOCALITY
No. of 6 in. Ord. map. ¼ sheet
SUBJECT *
SURVEY NO. *
SIZE plate
PROCESS
DATE PHOTOGRAPHED
TIME a.m. p.m.
¶COMPASS POINT
DATE RECEIVED *
DESCRIPTION
NAME AND ADDRESS OF CONTRIBUTOR
MEMBER OF THE FOLLOWING AFFILIATED SOCIETY—

Use one form for each print. Write clearly. Make description brief. * Leave blank.
PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.
¶ The compass point towards which camera is pointing

R & C. 2000 9/2/10

FIG. 8.—Label, Survey of Surrey. 5⅝ in. × 4⅝ in.

or curator or whoever is responsible for the care and arrangement of the survey material.

Locality.—This is not to be used for the description, simply for the precise, *specific* locality of the object photographed.

No. of 6″ Ordnance map ¼ sheet.—For the photographer who is working with the map, an eminently desirable item to include. In any case it should be added later by the classifier.

Subject.—The remark made under "Locality" applies here, the most specific subject heading being given. Thus, "Church, the pulpit" ("Stoke d'Abernon" appearing under "Locality"), not "Architecture" or any similar group or class heading. As some judgment is required to fill up this space properly, it is starred, as an instruction to the photographer to leave blank. It is best filled up by the person responsible for the classifying and indexing of the prints.

Survey no.—The registration or stock number.

Compass point.—A very important item of information, and one which is unfortunately omitted from the schedules of many of the older surveys. As the compass point may be understood in two senses, the item is explained in a printed note on the label.

Description.—This is the place for such information about the object shown in the print as is necessary or desirable. Such note should be terse, accurate, clear, and to the point. Information already given under "Locality" and "Subject" should not be repeated. The following are some specimen descriptions:—

Locality.	*Subject.*
Farley, churchyard	Yew trees

Description.

The nearer one, N.N.W. of church, is 8 feet 6 inches in girth and 290 years old; the further one, S.S.W. of church, is 19 feet 6 inches in girth 5 feet from ground, and 850 years old. See *Croydon Microscopical and Natural History Club, Transactions*, 1878–1884, p. 80.

Locality.	*Subject.*
Stoke d'Abernon.	Church, pulpit.

Description.

Probably foreign. Given by the Vincent family about time of James I.

Locality.	*Subject.*
Chipstead.	Church, interior.

Description.

From S. aisle, showing from l. to r. :—

W. door of N. aisle ; respond of N. arcade ; N.W. tower pier ; lancet in N. transept ; N.E. tower pier ; N. pier of chancel arch ; 3 heads of lancet in chancel ; part of chancel screen.

Locality.	*Subject.*
Addiscombe.	Ashburton house.

Description.

Formerly the seat of the Ashburton family, and frequently visited by Thomas Carlyle.

Locality.	*Subject.*
Newdigate.	Church, gallery rail.

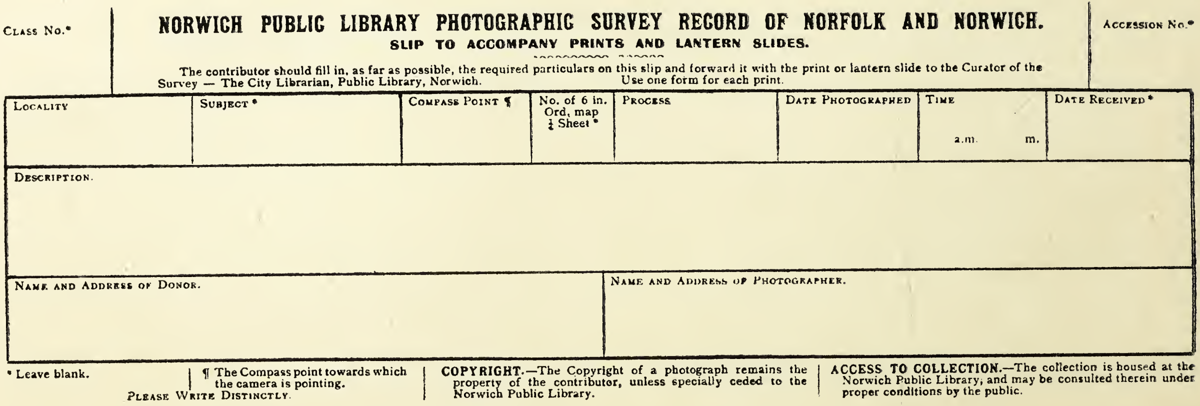
Description.

Under tower. Inscription : THIS GALLERIE WAS BUILDED BY HENRY NICHOLSON GENT ANNO DOM 1627.

Locality.	*Subject.*
Croydon.	Visit of Albert Edward, Prince of Wales, 19 May 1896.

Description.

Surrey Volunteers drawn up in George Street, in front of Whitgift Hospital.



CLASS No.*

NORWICH PUBLIC LIBRARY PHOTOGRAPHIC SURVEY RECORD OF NORFOLK AND NORWICH.

SLIP TO ACCOMPANY PRINTS AND LANTERN SLIDES.

ACCESSION No.*

The contributor should fill in, as far as possible, the required particulars on this slip and forward it with the print or lantern slide to the Curator of the Survey — The City Librarian, Public Library, Norwich. Use one form for each print.

LOCALITY	SUBJECT *	COMPASS POINT ¶	No. of 6 in. Ord. map ¼ Sheet *	PROCESS	DATE PHOTOGRAPHED	TIME a.m. m.	DATE RECEIVED *
DESCRIPTION.							
NAME AND ADDRESS OF DONOR.				NAME AND ADDRESS OF PHOTOGRAPHER.			

* Leave blank.

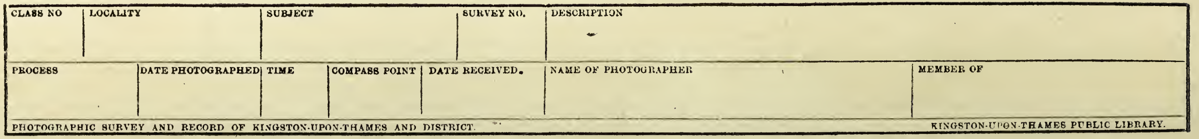
¶ The Compass point towards which the camera is pointing.

PLEASE WRITE DISTINCTLY.

COPYRIGHT.—The Copyright of a photograph remains the property of the contributor, unless specially ceded to the Norwich Public Library.

ACCESS TO COLLECTION.—The collection is housed at the Norwich Public Library, and may be consulted therein under proper conditions by the public.

FIG. 9.—Label, Survey of Norfolk. 9 in. × 3 in.

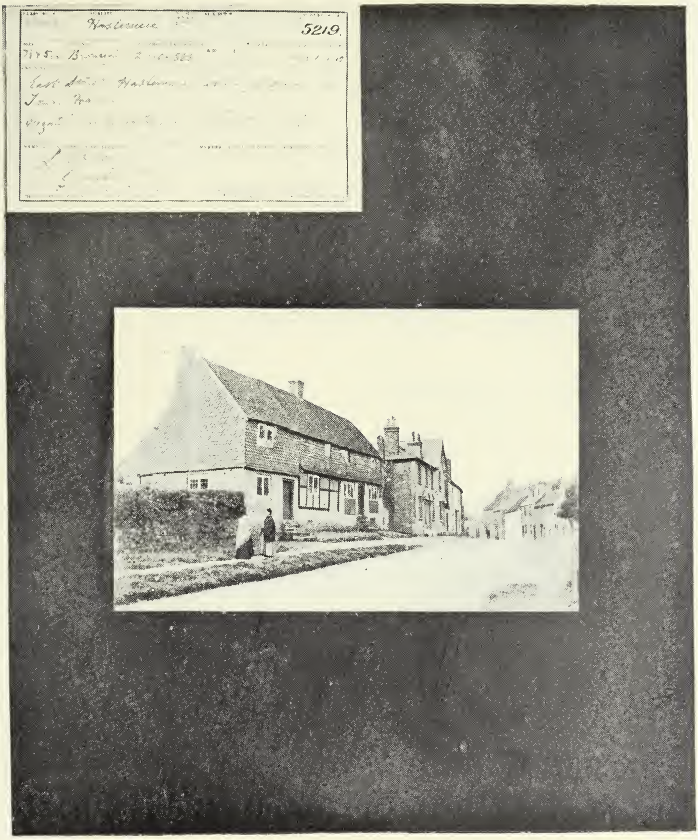


CLASS NO	LOCALITY		SUBJECT		SURVEY NO.	DESCRIPTION
PROCESS	DATE PHOTOGRAPHED	TIME	COMPASS POINT	DATE RECEIVED.	NAME OF PHOTOGRAPHER	MEMBER OF

PHOTOGRAPHIC SURVEY AND RECORD OF KINGSTON-UPON-THAMES AND DISTRICT.

KINGSTON-UPON-THAMES PUBLIC LIBRARY.

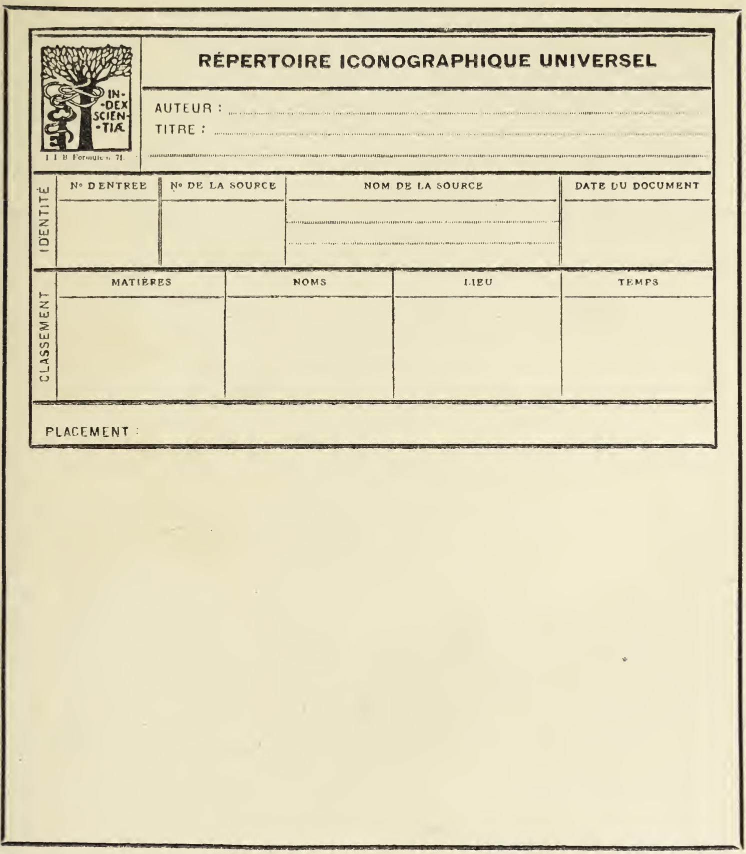
FIG. 10.—Label, Survey of Kingston-upon-Thames. 9½ in. × 1¼ in.



Facing p. 76.

FIG. 11.—Showing position of Survey of Surrey label on mount.

This label is pasted in the upper right-hand corner of the mount, as shown in Fig. 11, and on the front, where it meets the eye at the same time as the print,



IN-DEX SCIEN-TIÆ

I I B Formule n. 71.

RÉPERTOIRE ICONOGRAPHIQUE UNIVERSEL

AUTEUR :

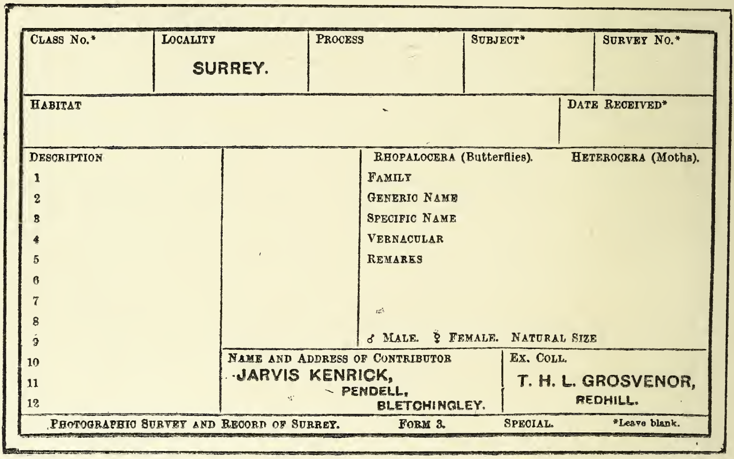
TITRE :

IDENTITÉ	N° DENTREE	N° DE LA SOURCE	NOM DE LA SOURCE	DATE DU DOCUMENT
CLASSEMENT	MATIÈRES	NOMS	LIEU	TEMPS

PLACEMENT :

FIG. 12.—Mount and label, l'Institut International de Photographie. $8\frac{1}{4}$ in. × $10\frac{1}{2}$ in. nearly.

and where reference may be made from the label to the print, and *vice versâ*, without turning the print over, or even removing it from the file, practical advantages which outweigh any objection which may be taken to the position of the label on æsthetic grounds. There is the further advantage that when the prints are put on exhibition no further labelling is required. Modifications in the shape of this label have been made by some Surveys (Figs. 9, 10). The l'Institut International de Photographie, at Brussels, combines label and mount (Fig. 12), a blank being printed on the front of the mount and the print fastened to the *back*; the material of the mount is stiff white paper.



Class No.*	Locality SURREY.	Process	Subject*	Survey No.*

Habitat	Date Received*

Description
1
2
3
4
5
6
7
8
9
10
11
12

Rhopalocera (Butterflies). Heterocera (Moths).
Family
Generic Name
Specific Name
Vernacular
Remarks

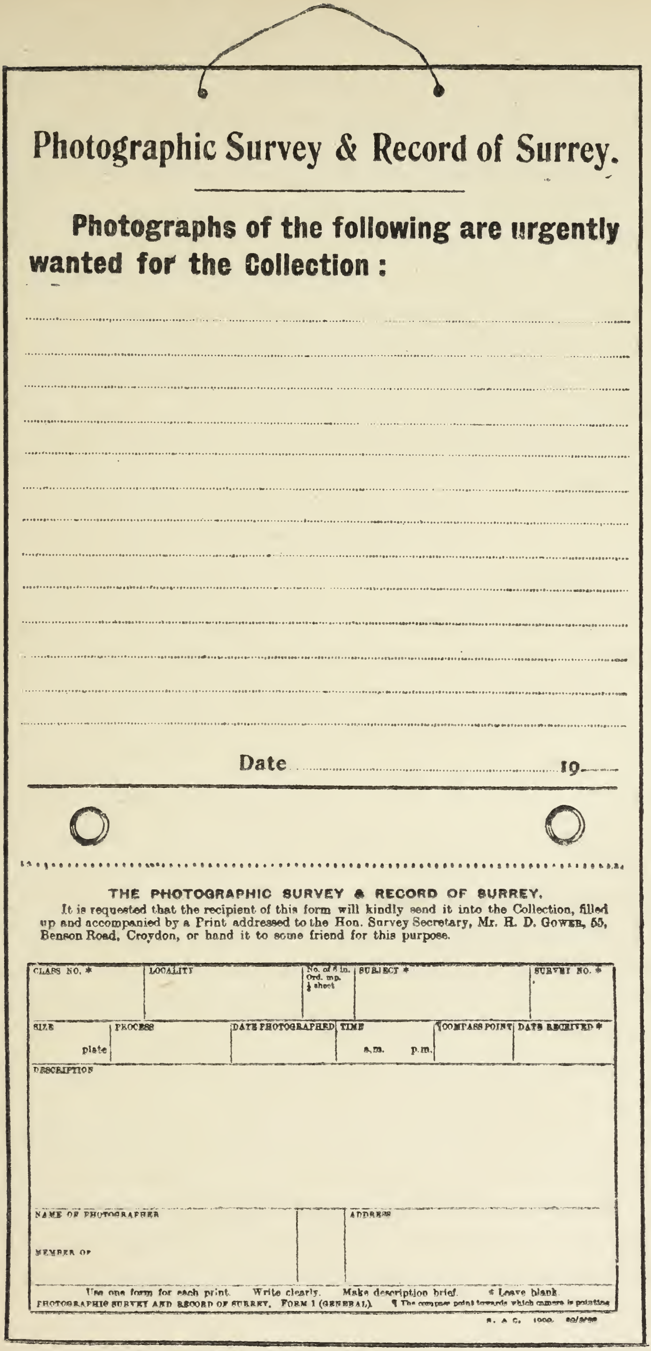
♂ Male. ♀ Female. Natural Size

Name and Address of Contributor JARVIS KENRICK, PENDELL, BLETCHINGLEY.	Ex. Coll. T. H. L. GROSVENOR, REDHILL.

Photographic Survey and Record of Surrey. Form 3. Special. *Leave blank.

FIG. 13.—Example of a special label (Butterflies and Moths), Survey of Surrey.

No label is applicable conveniently to every kind of subject, and it may be desirable to print special labels for some subjects, *e.g.* natural history. An example of such a special label is given in Fig. 13, used by the Survey of Surrey for a large collection of prints illustrating the butterflies and moths of the county.



Photographic Survey & Record of Surrey.

Photographs of the following are urgently wanted for the Collection :

Date .... 19—

THE PHOTOGRAPHIC SURVEY & RECORD OF SURREY.

It is requested that the recipient of this form will kindly send it into the Collection, filled up and accompanied by a Print addressed to the Hon. Survey Secretary, Mr. H. D. Gower, 55, Benson Road, Croydon, or hand it to some friend for this purpose.

CLASS NO. *	LOCALITY	No. of 6 in. Ord. map ½ sheet	SUBJECT *		SURVEY NO. *
SIZE plate	PROCESS	DATE PHOTOGRAPHED	TIME a.m. p.m.	¶COMPASS POINT	DATE RECEIVED *
DESCRIPTION					
NAME OF PHOTOGRAPHER MEMBER OF		ADDRESS			

Use one form for each print. Write clearly. Make description brief. * Leave blank.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY. FORM 1 (GENERAL). ¶ The compass point towards which camera is pointing

S. A C. 1900. [illegible]

FIG. 14.—Card of subjects wanted, with tear-off labels, Survey of Surrey.

A method of advertising the more urgent needs of a Survey locally is indicated in Fig. 14. This consists of a card intended to be hung on the notice board of a society, containing a list of subjects in the neighbourhood specially wanted for the collection, with a supply of labels beneath which can be torn off by interested members. It is well calculated to attract attention, if the local secretary can be persuaded to put up the board in a sufficiently conspicuous position.

STORAGE.

Whatever be the system of storage adopted, it is clear that the one never-to-be-forgotten and fundamental principle must be the absolute independence of each print. It must be possible to insert new prints at any point and to any extent. Any system of storage which does not enable this to be done is wrong. Only in this way can systematic detailed classification be applied to a growing collection of survey photographs. And all collections of survey photographs are either growing, or, if the work has been stopped, it may be resumed again later on. And no Survey is, or ever can be, complete. Hence all methods of binding collections into volumes are unhesitatingly condemned. The authors are acquainted with more than one instance where such bound collections, though blanks or guards were left for additions, became so hopelessly congested and the subject arrangement so upset, that the volumes had to be broken up and a more adjustable system substituted. Loose-leaf binders are unsuitable. They are expensive, the mounts must be provided with a hinge, and much time is spent in removing and inserting sheets. The forms of convenient storage resolve themselves really into two, the box and the drawer.

The cheapest dust-proof box, specially designed by one of the writers for Survey purposes, is that of which details are given in Fig. 15. The novel feature is the dust-proof lid. The box is lined with white paper inside, and covered with marble paper outside, has a xylonite label holder, and is made by Messrs. W. A. Fincham & Co., Spa Works, Northampton Row, Rosebery Avenue, E.C., to take the Surrey Survey mount ($12\frac{7}{8}'' \times 10\frac{5}{8}''$), for 9*s*. 6*d*. a dozen. A similar box to take the large mount ($16\frac{11}{12}'' \times 13\frac{3}{4}''$) costs 13*s*. a dozen. The capacity of this box is 110 mounted prints, and with care, and presuming that the collection is not being continually handled, it will last for years. Nothing better could be desired for a Survey in its initial stages, when the collection is not large enough to justify any considerable expenditure on storage. A much stronger, but far more expensive box, is shown in Fig. 16. This box has a hinged lid, and is covered with rexine. It is supplied by Libraco, Ltd., Cannon Street, E.C., at a cost of £2 8*s*. for half a dozen. It is therefore more expensive than the much-to-be-preferred vertical file, as described below. The box in use at the British Museum is of wood, covered with cloth, and has a strap handle; the price cannot be given, but it certainly cannot be cheap; it is illustrated in Fig. 17.

The box is a sufficiently satisfactory method of storage so long as the collection is comparatively small, and so long as the consultation is not heavy.

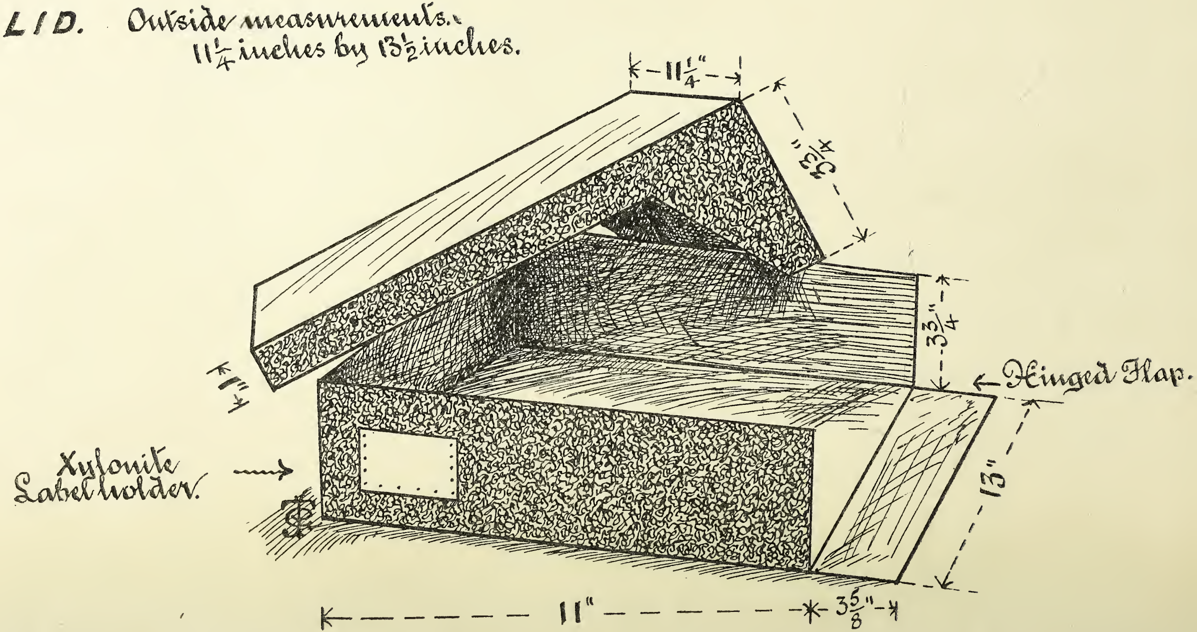
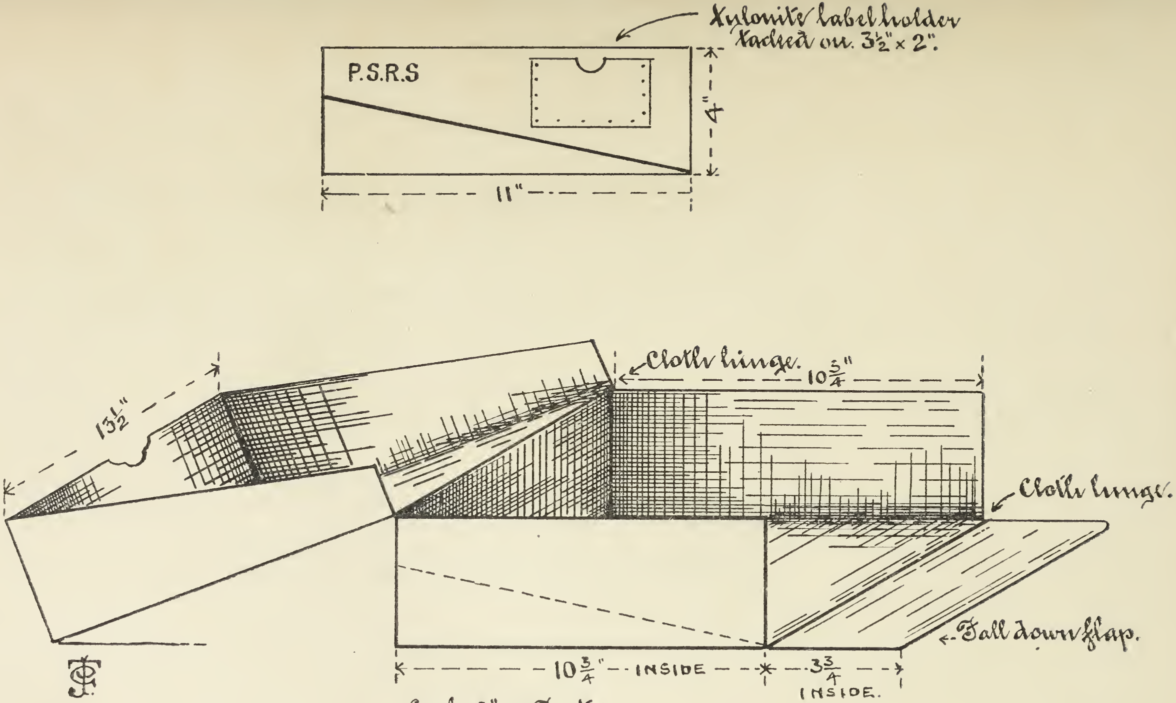


FIG. 15.—Print box, Surrey Survey.



Scale. 3" = 1 Foot.

FIG. 16.—Print box, Surrey Survey.

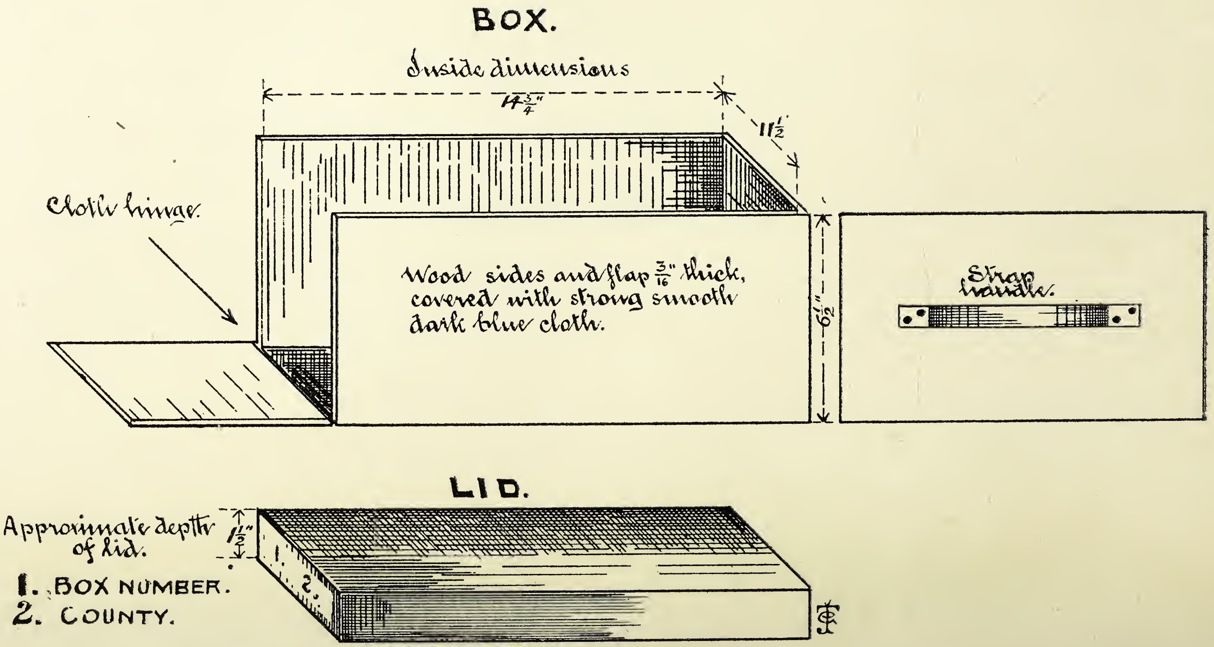

BOX.
Inside dimensions
14¾"
11½"
6½"
Cloth hinge.
Wood sides and flap 3/16" thick, covered with strong smooth dark blue cloth.
Strap handle.
LID.
Approximate depth of lid.
1½"
1. BOX NUMBER.
2. COUNTY.
1.
2.

FIG. 17.—Print box, National Photographic Survey, British Museum.

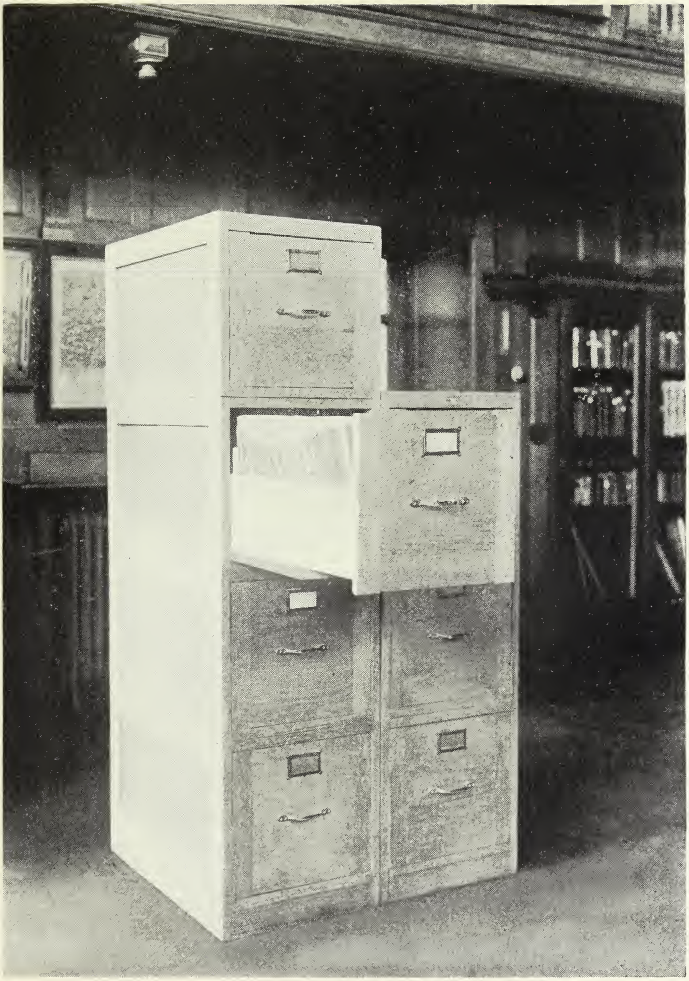
But as the use made of the collection grows, the amount of time and space needed to open a number of boxes, and the still longer time spent in returning prints to their places, become serious items, and must prevent the box from ever being regarded as the ideal system of keeping a survey collection. Perhaps there is no ideal system, but certainly the modern vertical file is as near an approach to the ideal as can reasonably be expected. It is by far the best way of keeping any collection of prints, unless of a size impracticable for edge storage in drawers. The objection is the cost of the highly finished and carefully constructed files, which are alone recognized by most of the many high-class firms which deal in these appliances to-day. Little or no attempt has been made until recently to place upon the market a less costly article, which while lacking the finish and detail of the best cabinet work, is so soundly constructed in its wearing parts as to give the same practical service as its more aristocratic fellow. This has now been done by Messrs. Partridge and Cooper, Ltd., Fleet Street, E.C., whose " Referee " vertical files can be recommended not only as both cheap and durable, but also because the makers have broken away from the inconvenient tradition of the three- and four-drawer unit, and adopted the natural unit of the single drawer, thus obviating purchase in undue advance of requirements, and—a point of great importance in many libraries where space is of such value—permitting of drawers being built up anywhere, either vertically or horizontally, to the fullest extent of the space available. The stock size of quarto drawer is too small to take the standard Survey mount, and to adopt a mount to fit the quarto drawer would be a mistaken policy. Messrs. Partridge and Cooper make a drawer specially for Survey storage, 13$\frac{3}{8}$″ wide × 11$\frac{5}{8}$″ high, inside measurements, at the following prices :—

Cornice section . .	£1	16*s.*	0*d.*
Intermediate section . .	£1	11*s.*	0*d.*
Base section . . .	£1	15*s.*	0*d.*

A drawer holds 630 mounted prints, so that the cost works out at 2·5 farthings per print, which is less than the cost of storing the same number of prints in good-quality boxes. If the prints are placed in manilla folders, which is recommended, not more than six prints to a folder, the capacity of a drawer may be taken at 540 prints and 90 folders. The manilla folders should have a double crease at the fold, the two creases being $\frac{3}{16}$′ apart ; the width of the folder is 12$\frac{7}{8}$″, and the height of the taller leaf is 11$\frac{1}{4}$″ from top edge to first fold. Any filing firm will supply these folders ; but the Lyle Trading Co., 64, Queen Victoria Street, will make them of a very durable manilla for 33*s.* per 1,000. Figs. 18 and 19 show a collection of prints stored vertically in a "Referee" cabinet, built up of single drawer units.

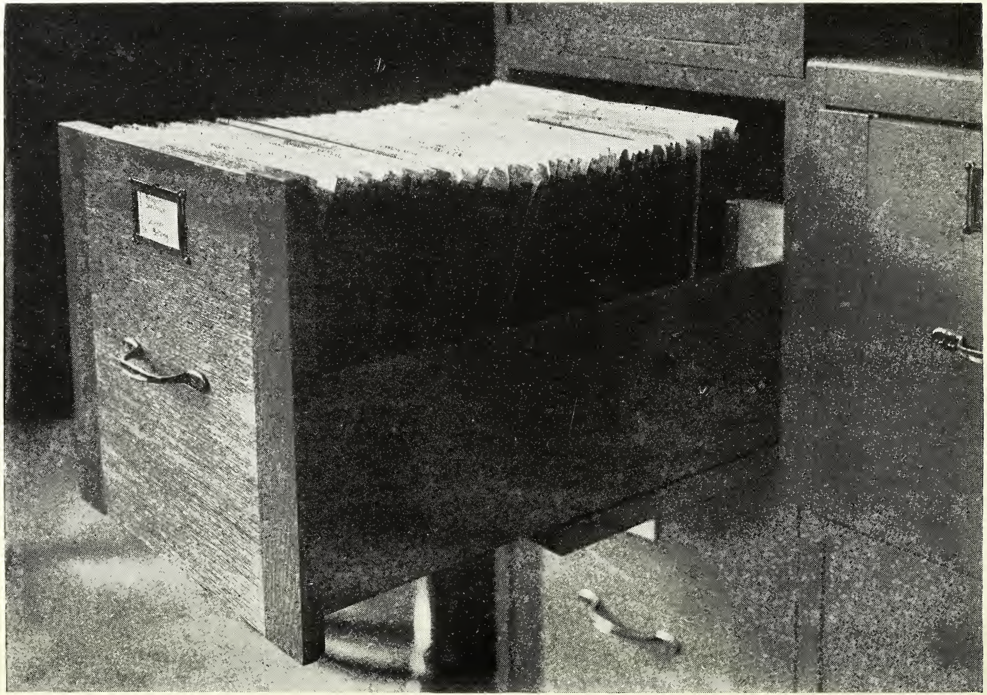
LANTERN SLIDES, ETC.

Making up.—There is no better example of the immense amount of repetition and lack of original investigation in text-book literature than the instructions as to the making-up of lantern slides. Many improvements are possible even in so trite and commonplace an operation as this. In the first place the mask



[*Facing p.* 86.

FIG. 18.—Prints stored in vertical file, Survey of Surrey.



[*Facing p.* 87.

FIG. 19.—Drawer of vertical file, Survey of Surrey.

should be black on one side only, and white on the other. It is true that this mask can be obtained, but photographic dealers rarely stock it; and until one of the writers induced a firm to take the matter up no such *adjustable* mask outfit was to be had. The only discoverable reason for the use of black on the lantern side of the mask is to force the purchaser to invest in sticky and troublesome white ink for the purpose of naming his slides. If the surface is already white, ordinary ink may be used both for spotting and records; the nature of the record is referred to and illustrated on pp. 127–8. The outfit recommended is Clark's "Rectangle" Lantern Slide Mask Outfit, to be obtained from Messrs. Roffey and Clark, 12, High Street, Croydon, price 10*d*., or post free 1*s*. per box.

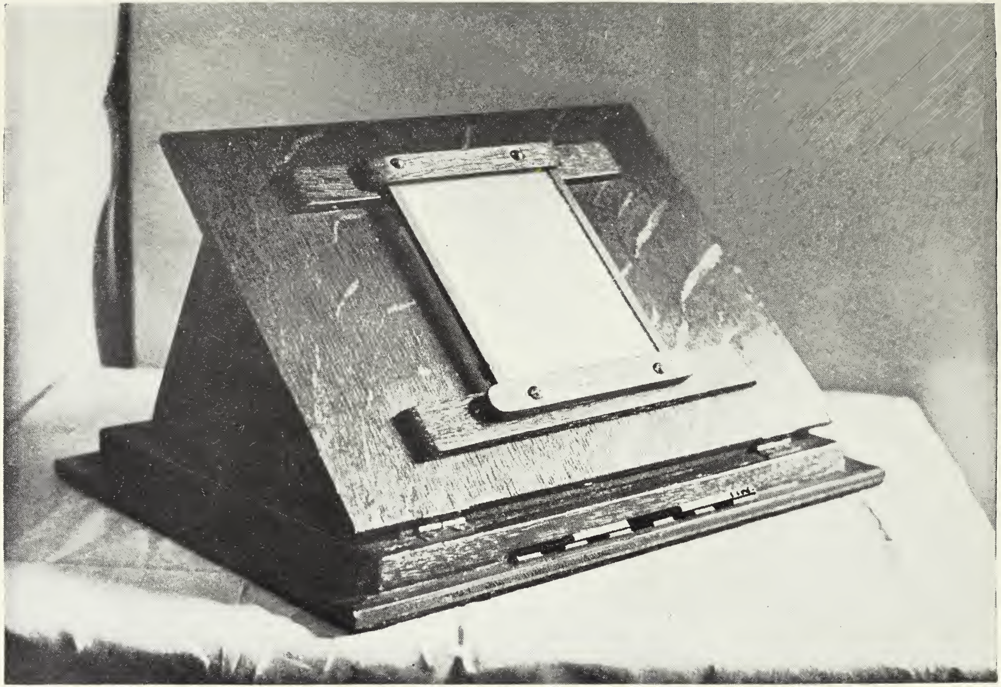
The problem of a satisfactory binding strip for lantern slides is one which has worried photographers and lecturers ever since the lantern slide came into being. The paper strip will not stick properly, and it will not stand even normal wear and tear without suffering. The silk strip is too expensive. The authors think they have found the remedy in the gummed tape, made by Messrs. Gosheron & Co., 85, Fleet Street, E.C., for fastening parcels, in place of string. It is very strong and very cheap. At the suggestion of the authors, Messrs. Gosheron supply a tape ⅜″ wide, in coils of 450 feet, for lantern slide binding, at 1*s*. 6*d*. a coil. A coil will bind about 400 slides.

A further hint. The binding strip should be white. This enables class marks to be written on the top edge of the slide, which is important when the slides are stored, as they should be, on edge; occasionally also the sides may be useful for entering particulars omitted from the mask. Moreover, a pile of such slides is not in so much danger of being accidentally knocked over in the semi-darkness in which lanterns are generally manipulated.

The process of binding should be carried out, as is done in the trade, by turning the slide round on its edges on a moistened continuous strip. The idea that it is easier for the amateur to bind in four distinct operations, using four separate strips, one for each side, is entirely erroneous. The operation is not only longer, but what is more important, the result is not so lasting, as there are four points of juncture instead of one, and every point of juncture is a point of weakness. A few trials will easily ensure the skill necessary for success, and a permanently bound slide, capable of withstanding all reasonable handling, will be the result.

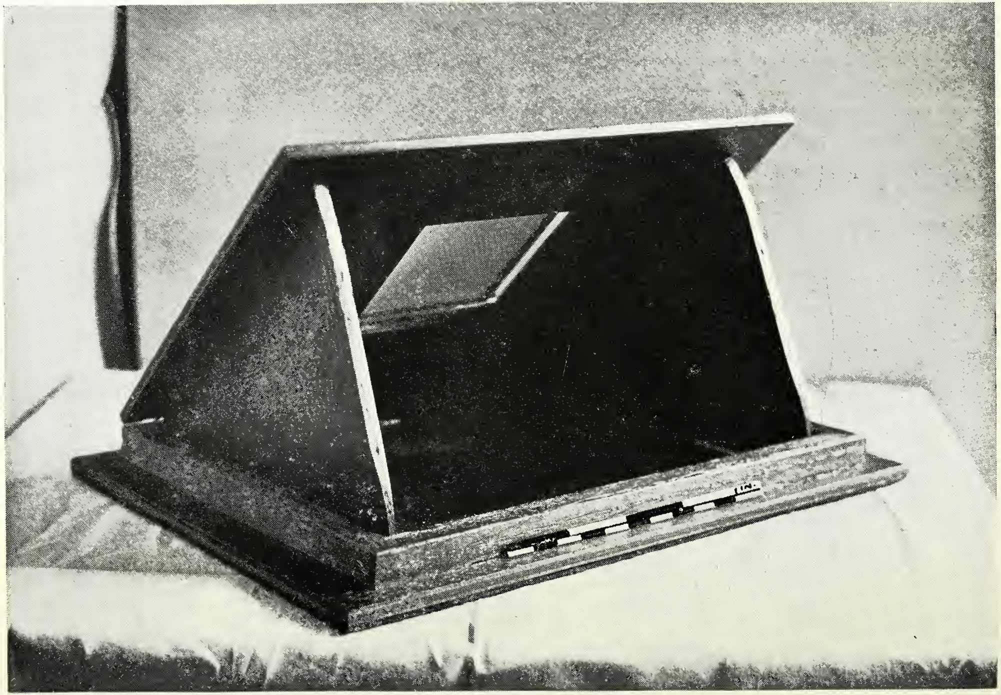
Storage of slides and negatives.—Lantern slides are best stored in drawers with vertical partitions, at intervals of 2½″. Cheap and strong cabinets are supplied by the Wesleyan Methodist Sunday School Department, 2 and 3, Ludgate Buildings, Farringdon Street, E.C., at a cost of 18*s.* for a nine-drawer cabinet, with a capacity of 76 slides per drawer.

The storage of *negatives* is rather aside from the purpose of a Photographic Survey, which concerns itself with prints, and yet it would be foolish for a Survey to refuse, under all circumstances, to undertake the custody of *rare* and *valuable* negatives, unless their custody involves a charge which the Survey cannot meet without injury to its primary object. The usual modern plan of storage in envelopes is



[*Facing p.* 88.

FIG. 20.—Lantern viewer, showing groundglass and slide, turned towards the source of light.



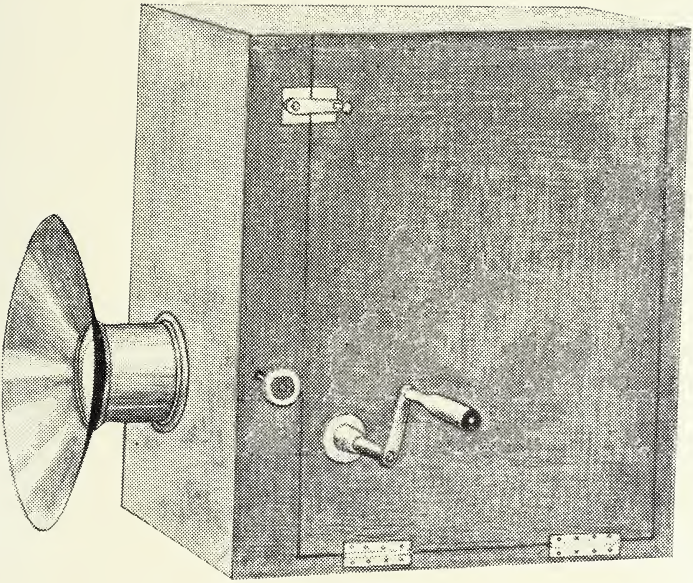
[*Facing p.* 89.

FIG. 21.—Lantern viewer, showing mirror base and interior of hood.

more expensive and inferior as regards accessibility to the plan in vogue in the Croydon Reference Library, where negatives up to half-plates are placed in small manilla folders, similar to the folders in use for vertical files, each folder bearing the number of the negative it contains. The folders are stored in drawers, similar to those employed for lantern slides, with vertical divisions at intervals of 2½″. These negative folders for quarter-plates are 7″ × 4⅜″ when opened out, with a fold 3⅝″ from the top edge. They will be supplied by Messrs. Rayward Bros., 81, Queen Victoria Street, E.C., at a cost of 7*s.* 6*d.* per 1,000, or 14*s.* per 2,000. Negatives larger than half-plate may be placed in folders with a flap, to keep out dust, and stored on edge on shelves with vertical partitions.

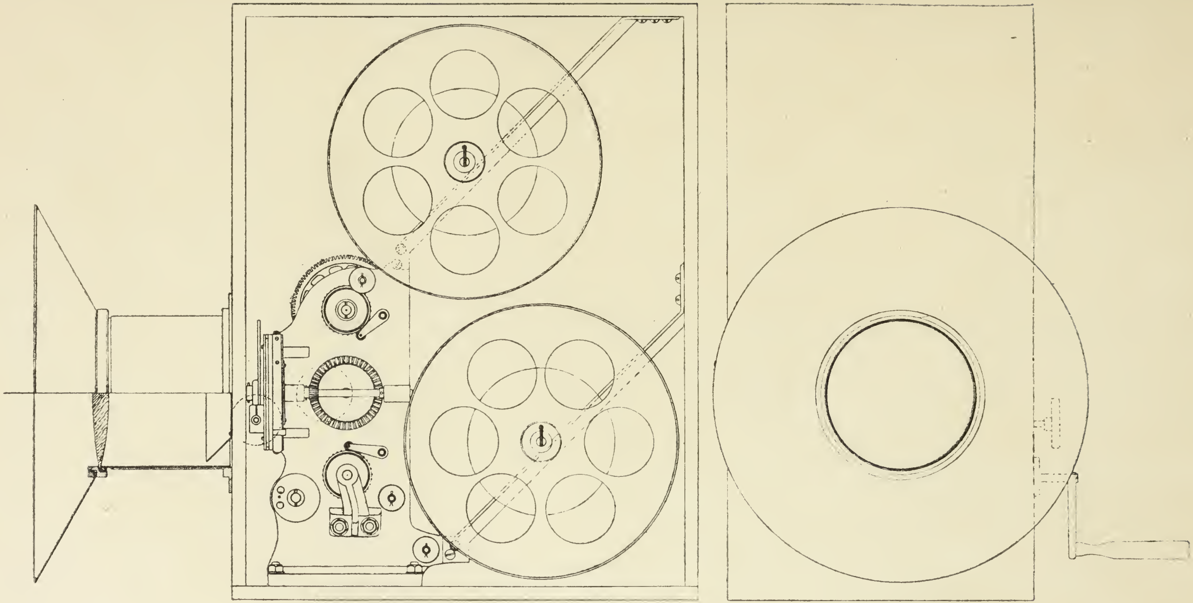
Viewer for lantern slides.—It is not always convenient to project lantern slides, and their range of usefulness is indefinitely extended if some simple method of viewing them without the aid of the lantern is available. In any Survey which collects lantern slides—and all Surveys should—it is probable that some records will exist only in this form; some subjects, moreover, are peculiarly suitable for lantern slide treatment—stained glass windows, for example, and subjects photographed in their natural colours. There is no satisfactory apparatus for viewing lantern slides on the market, but a device designed by one of the writers for the Surrey Survey, and illustrated in Figs. 20 and 21, can easily be constructed at a cost of a few shillings. It consists of a wooden base, into which is fitted a mirror; on one of the longer sides of this frame is hinged a wooden flap, with triangular side-pieces hinged to the under-side, which engage with the inner edge of the base, so as to form a hood above the mirror; when the apparatus is not in use the side-pieces fold up and the flap shuts down on to the mirror. The interior of the hood is blacked. A square hole is made in the hinged flap, a little smaller than the lantern slide, and on the outer side or top of the flap is fixed a piece of ground glass. The slide to be viewed is slid between the ground glass and the hole, between two guiding ledges; the ground glass is turned to the source of light, whether natural or artificial, and the image is seen in the mirror; the effect being exactly that of the slide projected by the lantern upon a screen, and far superior to the glaring effect obtained by looking directly through the slide, by means of light thrown from a mirror, as in the usual way. The slide is pushed from beneath the ground glass and over the left edge of the flap by the next slide to be viewed, and is thus conveniently removed by the left hand, while the right hand guides the following slide; if there is no following slide the apparatus is slightly tipped towards the left and the slide drops clear. Libraries having collections of lantern slides should stock two or three of these handy viewers; they would be useful, too, at exhibitions. Messrs. A. H. and W. F. Maynard, carpenters, of Bletchingley, Surrey, will supply the viewer for about 8*s*.

Viewer for cinematograph films.—What has been said in the preceding section as to the inconvenience of being able to view lantern slides effectively only when projected, applies with much greater force to cinematograph films. There is also the serious drawback in the case of the cinematograph film, that it cannot be viewed when resting at any single picture in the



[*Facing p.* 90.

FIG. 22.—Viewer for cinematograph films.



Side Elevation (door etc removed)

Front

FIG. 23.—Viewer for cinematograph films, showing construction. Door side of case removed.

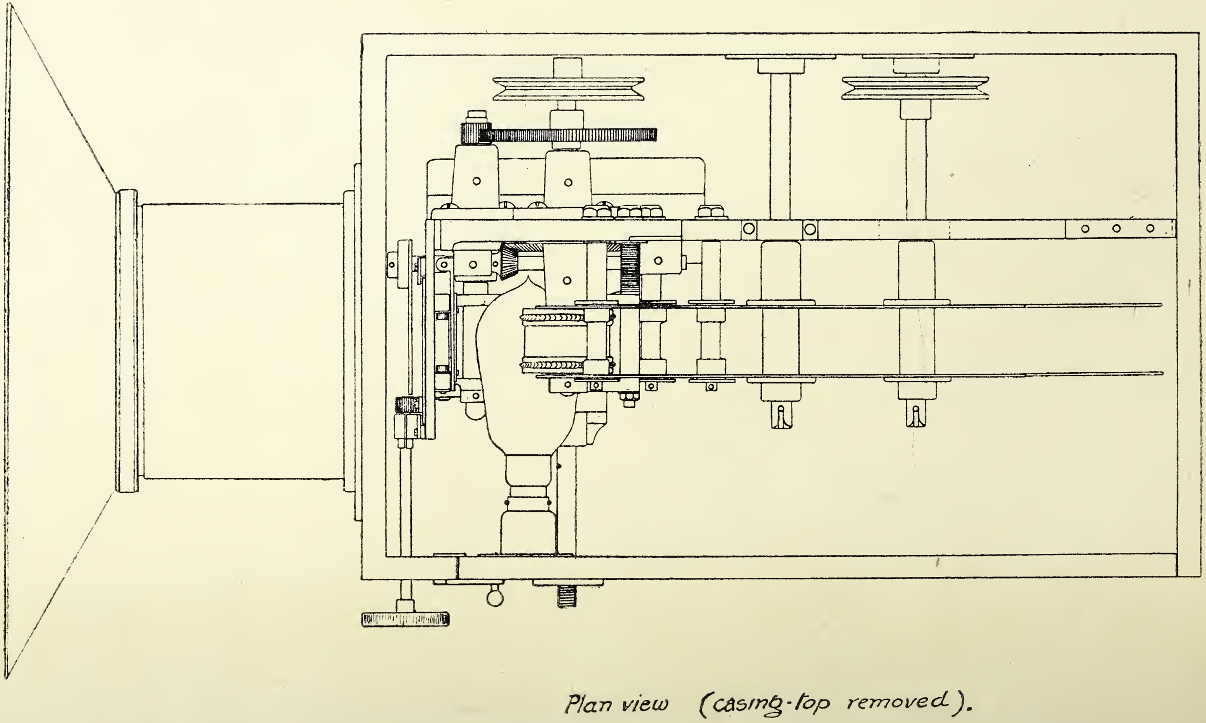


FIG. 24.—Viewer for cinematograph films, showing construction. Top of case removed.

series, obviously a matter of great importance in the use of the film as a *record.*[1] It is strange that no appliance for viewing the "moving picture," either in motion or at rest, and without projection, should have seemingly been evolved and put upon the market. At the suggestion of the authors, Mr. T. H. Windibank, electrical engineer, Croydon, has worked out a device for the purpose, which is illustrated in Figs. 22, 23 and 24. It resembles the less elaborate projection lantern in the arrangement for passing the film pictures in succession before an illuminated shutter opening. The light, however, is an incandescent electric lamp behind a sheet of ground glass, and in place of the projecting lens is fitted a magnifying glass through which the illuminated picture is viewed. The cost of the apparatus is £10 10*s.* It seems an essential thing to have wherever cinematograph films are stored for public inspection.

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[1] Since this was written there have been two or three inventions to enable the projected films to be stopped at any point.

CHAPTER VI

THE CLASSIFICATION, GUIDING AND INDEXING OF SURVEY PHOTOGRAPHS

Next to the securing of a proper place of deposit, proper storage and proper facilities of access for a Survey collection comes the question of its proper *arrangement.* If the collection is very small, it is not perhaps of very much consequence on what principle it is arranged, or, indeed, if it is arranged in any particular order at all; but the smallest collection will grow, and as it increases the need of arrangement will become more and more insistent; and not only the need of *some* arrangement, but the need of an arrangement which will serve as an efficient key to the scope and contents of the collection, not merely as it is, but as it will become. Doubtless any arrangement is better than none; it may be the order in which the prints are received, that is, the order of their accession; or it may be that the prints sent in by each contributor are kept together under his name. The first arrangement is not uncommon, the second obtains, or did obtain, in at least one instance; but neither of these arrangements afford the slightest clue to the contents of the collection. They are easy to apply, but this is all that can be said in their favour. A catalogue or index is an absolute necessity where either of these arrangements are adopted, but no catalogue or index, however fully and however efficiently compiled, can really take the place of some kind of subject arrangement of the prints themselves. And when the prints in a collection run not only into hundreds but into thousands—as all collections belonging to live Survey Societies certainly do, or as certainly will—the more detailed such subject arrangement may be, the more effective a working tool the collection will become.

The most obvious subject arrangement is that of *locality*, and nearly every Survey collection in the country, prior in date to the Surrey Survey, if arranged on any subject basis at all, has adopted the local order; the localities being usually arranged on an alphabetical basis, whether, as in a county survey, these are towns, parishes or other districts, and villages, or, as in a town survey, wards and streets. Assuming—an assumption with which we are not prepared to agree—that the local order is the best primary unit of arrangement under all circumstances, when it can be applied, there will undoubtedly remain, in any considerable collection, or even in a small collection in some cases, a large number of prints within even the most limited local boundary which require further division, if facility of reference is studied, and—a by no means unimportant consideration—unnecessary handling of prints avoided. A single object, such as a cathedral, or a great house, may require for its complete photographic record some hundreds of prints, though it is likely that records of single buildings on this scale, entirely worthy as our great cathedral and abbey churches are of such loving study, are rarely if ever attempted. But if there be only forty or fifty views of an important building, these gain immensely in significance and educational value if placed in a logical order, views of the west front for example together, and preceding views of the nave, these again coming before views of the transepts, and so forth, so that one turns over the records in the same sequence as one would progress through the original edifice itself.[1] If this is so in the case of a single object it is still more true of a multiplicity of objects, comprising landscapes, buildings, natural history specimens, antiquities, passing events and what not, all tied together in a higgledy-piggledy heap by the single, and in many instances largely accidental, thread of locality. It is clear therefore that no Survey collection can pretend to be in any true and fitting sense "arranged" which does not recognize some subject order beyond a merely topographic classing. An alphabetic subject arrangement is only a very partial solution of the problem; it is difficult to apply it consistently, and while it may meet most demands fairly well so far as any particular unit group is concerned, it obviously perpetuates the non-subject arrangement amongst the unit groups themselves, where *ferns*, *fires*, *fishes*, *flies* and *folk-lore* may be brought into an unholy juxtaposition by virtue of the fact that these names begin with *f*. When time, labour, skill, and money are to be expended in making a survey which shall do credit to the workers and benefit the present and future generations, it is worth the most careful consideration to so marshal the collection that it shall yield its information in the most direct, immediate, and specific way. This end can only be attained by a *systematic* order, that is, an order in which only subjects are brought together which are closely akin in themselves, as churches with residences, these again with schools, shops, etc., all being varieties of buildings.

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[1] See an example of this arrangement on pp. 112–14.

Very elaborate subject schemes have been worked out by librarians for the arrangement of books and other printed matter, of which one of the most widely known is the Decimal Classification, invented by Mr. Melvil Dewey, the seventh edition of which was published in 1911. This classification covers, of course, the whole field of literature; it has been applied to many collections of prints, but it is in many respects unsuitable for a Survey collection, if only because of the extent and complexity of the tables—there are thousands of separate heads in the last edition—the long classification marks, and the very large number of heads which would be left unused. The classification which occupies the next chapter was therefore devised, with special view to the peculiar requirements of a collection of Survey photographs, and it is hoped that it will commend itself to other Surveys, as it is obvious that there are certain advantages in standardizing the classification of the various collections in the country, as in facilitating exchanges, co-ordinating statistics, and greatly aiding comparative study. It has already been applied to over six thousand prints in the Surrey collection, having a large annual use by students, with excellent results. Readers unfamiliar with modern work in classification may regard the scheme as too complex, at all events for initial application, and may be inclined to favour something of a much simpler character, but experience has shown again and again the wisdom of using at the very commencement of a collection a scheme of arrangement which provides for every stage of growth, so that the work once done, though it may need to be added to in the future, will never have to be undone.

The notation is of the simplest, consisting of figures only, and these figures are not whole numbers but decimals. The object of the decimal number is to render it perfectly easy to provide for new subject headings at any place where they may be required without departing from the pure number sequence or introducing any fresh kind of symbol to complicate the mark. Thus, 5375 indicating *Fruits, Orchards* and 5376 *Crops*, and it being desired to introduce an additional subject-heading after 5375 and before 5376, such heading might be marked 53751, or a series of headings could be marked 53751...2...3 and so forth, to any extent wished. The decimal point need not be actually recognized in practice, unless it is employed in a special way to break up a long number into sections, making it simpler to remember and the sequence more obvious. Thus 537·5, 537·536, 537·6 are rather more easily grasped than if left unpointed; in this case the rule may be to insert the point after every set of three figures.

A glance at the table of main classes will show that locality has been strictly subordinated to subject; the local divisions are primary in the class of *Topography* alone, which is the first of the main divisions, and the word is used in its most limited sense, subjects like *Architecture* and *Antiquities* being dealt with separately. But the fact that the view has been taken that photographs, *e.g.* of *Churches* (541, a subdivision of 54

Architecture) are far better arranged under *Churches* and thus kept together than scattered about under various districts, does not imply that the local divisions are ignored; on the contrary the churches, having been brought together as one large unit group, are *then* arranged by the districts into which they fall, and by a device common in modern systems of book classification, the local divisions already employed under *Topography* are employed again here, by simply adding the topographic number to the subject number, as will be explained more fully in a moment. Before we pass to this it is desirable to devote a few words to the subject of the local unit itself.

What particular subdivision of the county shall we select as our unit area? The division which will probably first suggest itself is the parish, and it has the advantage of being intimately related to the history of the county, and for this reason nothing could be better for the arrangement of a collection of county literature. But prints stand in a somewhat different case. They will be greatly more numerous, and have a much more specific relation to the topography than books or pamphlets. Printed matter is more often written round a district, a village, parish, town or other perhaps less defined area, as the case may be, and the literature dealing with a specific object, such as, *e.g.*, a parish church, will be limited as a rule to the more important and historic objects; but there will be many thousands of objects illustrated in a Survey collection. The boundary of a subject treated in a book or pamphlet is, generally speaking, vague, depending on the whim of the writer, and the most specific topic is merely a centre from which the writer may spread himself in any or every direction; but the photographer must keep strictly to the business in hand, which is to take something; and though to focus the mind upon an object to the exclusion of everything else even for a few moments is a difficult enough undertaking for most people in these days, the camera is fortunately unable to wander from the object upon which *it* is trained. The bearing of these considerations upon the local unit best adapted for classing prints is easily indicated. As the material to be sorted will be—at all events may be—immensely larger than the bibliographer has to grapple with, the unit area should be fairly small, so that the number of groups may bear a convenient ratio to the amount of the material to be divided. The parish is so variable an area, covering anything from a square mile or under to over thirty-seven square miles, and possibly more, that it may just as likely be too small as too large, nor does it conveniently divide up further when further division is a necessity. And as the material to be classified is strictly not even specific but individual, so its place in the scheme is as definitely defined. The photographer, when filling up his slip of particulars to be sent in with his print, cannot be expected to know in many instances whether the road, or the ancient milestone, or the house, or what not, he has taken is within this parish or the other, and reference to a map will not always settle the question readily—the parish boundaries are sometimes difficult to follow, even on the 6-inch Ordnance map. But he has not the smallest difficulty in ascertaining if his view is in the map itself, or if the information is not supplied in the field (which is best), there is usually no trouble in ascertaining this when classifying at the headquarters of the collection. But the advantages of the area adopted in the tables, which is that of the quarter-sheet of the 6-inch Ordnance Survey, over the parish, do not end here. The parish, whether the ecclesiastical or the civil parish is intended —and the boundaries of these two areas by no means necessarily coincide—are liable to alteration from time to time, whereas the map area is fixed. There is a further great practical advantage in having the unit area for field work the same as that by which the collection itself is ordered. And if in any particular map sheet the number of prints—despite their allocation to subject groups, which, of course, is an important factor in reducing the material in any one of the duplicated local groups—becomes so large that further division is desirable, the quarter-sheet may be split up into four sub-quarter areas and designated in the same way as the quarter-sheets by the digits 1—4. Thus *e.g.* 264 being sheet 26, quarter-sheet 4 (*i.e.* 26SE), 264.4 will be sub-quarter 4 of quarter-sheet 4 (*i.e.* the SE quarter of 26SE). The quarter-sheet includes a district 3 miles by 2, the sub-quarter a district 1½ miles by 1. The sub-quarter sheet, if used at all, is only likely to be needed in the centre of large towns; but there is clearly no difficulty in carrying out this system of sub-division to any extent, without losing the very great practical advantage of exact relation to the Government map.

Returning to the tables, we find under 54 *Architecture* the following instruction :—

"The heads below, 541–47, are sub-divided like Topography 01–47."

This refers to a very valuable method of applying the numbers used in Topography to any subject which usefully lends itself to local arrangement, after the subject grouping has been carried as far as convenient, and as the numbers are decimals it is only necessary to add on the local numbers to the subject number, of which they become more minute divisions. It is convenient, however, to enclose the topographic numbers in brackets, to show that the system of subdivision becomes local at this point; this has the further advantage of freeing the digits used without the bracket for other purposes if wanted. Thus:—

541 being *Churches*
541(363) is *Churches in* 6-*in. quarter-sheet map* 363.
544 being *Business buildings*
544(363) is *Business buildings in* 6-*in. quarter-sheet map* 363.

If the opinion held by the writers that the subject order is better than the local order for the primary classing be deemed unsound, and the reverse arrangement be preferred, there is nothing to prevent the above order being reversed, and the subject number being added to the local number, thus—

363 being a *quarter-sheet map*,
541 being *Churches*, and
544 being *Business buildings*,
(363)541 is *Views in map* 363 : *Churches;*
(363)544 is *Views in map* 363 : *Business buildings.*

It has already been observed that local literature is naturally related to the historic divisions of the parish, and as title-pages, manuscripts and other documents offer a field for photographic work, little, if at all, inferior in interest and value to any other field, it is desirable that here the most suitable local area, which is the borough, district or parish, should be recognized, and not a purely mathematical division on a map. Hence for use in 49 *Literature* and 57 *Passing events*—where the same remarks apply—an alternative local order by boroughs, districts, and parishes has been indicated. These are marked by the double numbers from 60 onwards ; they are simply added to the subject numbers in the same way as the map numbers, and like them enclosed in brackets, and as the two systems of local numbers are never employed in the same subject group, no confusion whatever can be caused by the double topographical arrangement. It may be pointed out that if the Survey collection is stored where there is a collection of county literature, the latter may be marked by the divisions of 60-99, the local order being as clearly the most convenient primary classification in the one case as the subject order is in the other ; the two collections will thus be brought under the same general scheme.[1]

But when the material has been thus marshalled into systematically arranged groups and sub-groups by the application of a class number or mark, some further arrangement within the limits of the subject denoted by the class mark will be in many cases necessary, and in all cases desirable, if immediate reference be regarded, as it should be, as a *sine quâ non.* However detailed the classification, its work is done when it has assembled together the photographs alike or similar in subject, but clearly we may have many *objects* falling within the one subject group, and the only way of bringing these into any determined order is by the application of a secondary mark of some sort. Not only so, but there may be, there will be, numerous instances in which there are several photographs of the same object, not duplicates, but different views of the object, or portions of it, and if these are to be differentiated and brought into order as a little group by themselves, a third mark must be devised for the purpose. Librarians have long used such marks for books, to indicate (after the *class* mark), the author (*author* mark) and title (*work* mark), adding in some cases a further mark for different *copies* of the same work. Various systems are in use, one of the best known being the *Alphabetic Order Table* of the late C. A. Cutter, widely adopted in the libraries of the United States. The principle on which Cutter's table is constructed is to represent certain combinations of letters occurring in proper names by an initial followed by figures, thus Dick*e*ns would be represented by D55, Dick*i*ns by D56, and as these figures are regarded as decimals, a combination like Dickenson might be marked D552, thus bringing it into its alphabetical place between Dickens and Dickins. Titles of particular works are then marked by the initial or initial and following letter of the title added to the author mark, thus Dickens' *David Copperfield* would be D55d, and *Dombey and Son* D55do. Obviously this system of author marks may be just as readily used to translate into the appropriate letter-figure combination the name of a place or object as of a person, and the Cutter numbers are often used in this way, but they are not recommended here, for two reasons: they are not self-explanatory, and they require constant reference to the printed table during the process of allotting numbers. The use is suggested, in place of the somewhat complicated Cutter number, of the first three letters of the arranging word, with the addition of a fourth letter when necessary ; this method has the advantage of extreme simplicity, and in most cases the mark will be no longer than that yielded by the Cutter table. For the sake of clearness, the following terms are employed in lieu of the rather inappropriate librarians' terms of *author* and *work* numbers or marks—

---

[1] The subject-heads in the tables are not intended or in any way adapted for subordinate use in a literature collection.

The CLASS MARK=The mark indicating the subject group in which a print is placed, as *Architecture—Churches,* etc.

The OBJECT MARK=The mark indicating (in a general way) the object depicted, as *Croydon parish church.*

The VIEW MARK=The mark indicating the aspect or portion of the object depicted, as, *South-East prospect of Croydon parish church,* etc. Used only when needed.

Now to apply all these marks to the illustration given, namely, *The South-East prospect of Croydon parish church.* The subject is *Churches* and the class number for churches is 541 ; add the number for the map area, and we have as the complete *class mark* 541(143). The object is *Croydon parish church,* and taking the first three letters of the arranging word Croydon, we have as the *object mark* Cro. The view is the *South-East* of the church ; here we need only use a single letter, presuming that this is sufficient to distinguish from other views bearing the same object mark ;

we have therefore for our *view mark* S. The complete *print mark* will therefore be written thus—

541(143) Cro S

or thus—

541(143)
Cro S

or thus—

541(143)
Cro
S

The writing of the print mark in a single or double line is best for a print register or a printed catalogue, because of the need for economy of space, but on the mounts themselves the three-line entry should always be employed, as being clearer and more rapidly read

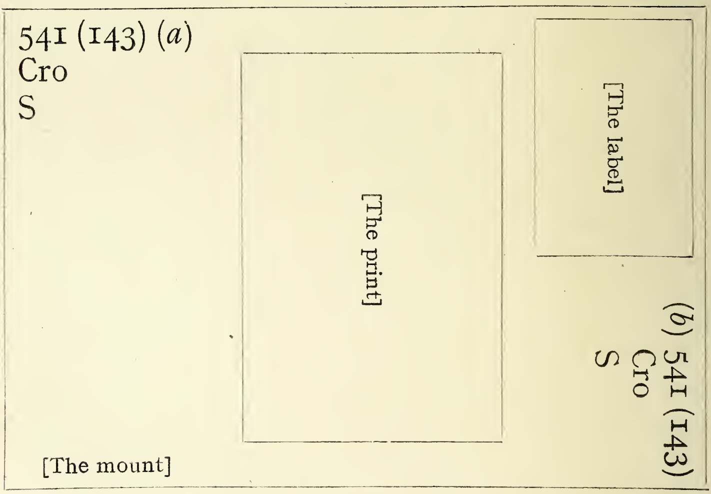


FIG. 25.

(*a*) Position of print mark in upper left-hand corner of mount when filed in vertical file.

(*b*) Position of print mark in upper right hand corner when filed in a box.

when turning over a number of mounts, the eye being concerned only with the top line till the right class mark is found, then only with the second or third line according to the subordinate group reached. These numbers should be written boldly with Higgins' engrossing ink (price per 2 oz. bottle, 1*s.* 0*d.*, per dozen bottles, 9*s.* 0*d.*) in the upper left-hand corner of the mount, as it lies lengthwise in the filing drawer (Fig. 25). If the prints are stored in boxes the position for the print mark will be the upper right-hand corner in the reverse position of the mount, that is, on its outer edge, as it lies on its shorter axis, this being the position of the mount as it is consulted in the box. Or the entry on the label itself may be deemed sufficient, without the additional lettering on the mount, though the smaller lettering of course will not so easily catch the eye.

When two or more objects in the same class group have the same three letters in the arranging word a fourth letter will be necessary to distinguish them; in adding this letter it is not at all requisite that the next letter in the word should be taken; the initial of another significant word in the description may be used, or even an arbitrary letter which will fix the correct sequence; the object being to avoid lengthy marks, especially letter marks, which are much less easily grasped than figures. Thus, two views of the grounds of Waverley Abbey and Waverley Abbey House respectively, both bearing the same class mark 301.2, may be distinguished in this way—

301.2 Waverley Abbey.
Wav
301.2 or 301.2 Waverley Abbey House
Wave Wavh

For marking genus and species in zoology a modified object mark is resorted to, consisting of the first three letters of the genus, followed by a point, and the initial of the species, thus—

519.3 Ranunculus bulbosus, common buttercup.
Ran. B

Other examples of object numbers are given in the following table:—

Examples of the Application of Complete Print Marks to Survey Photographs.

002 A woodland lair.
Lai

002 A thorn thicket.
Tho

003 A shoulder of the Downs.
Dow

004 In a smuggler's lane.
Smu

004 One of the old woodland tracks.
Woo

004 A woodland track.
Woo

005 Through gorse-grown hollows.
Gor

005 By heathy heights.
Hea

005 By the heath ponds.
Heap

[All the above are undetermined localities, and the titles are mainly fanciful.]

274.1 God	Godstone pond, from a water-colour sketch.
274.9 God	Godstone, view from site of camp, looking to North Downs.
281.2 Tit	Path through Titsey woods, which descends to Limpsfield.
283.5 Lim	View on Limpsfield Common.
283.5 Lim G	Gorse or furze on Limpsfield Common.*
	[* This might go in 53 Botany, in which case it would arrange by its genus and species name, and locality would be ignored.]
283.9 Gre	View over Oxted and Limpsfield from North Downs, above Greystone lime works.
301.4 Cas	Farnham. Castle Street.
301.4 Wes	Farnham. West street, looking East.
481 Fry	"Feeding the Chickens" (Bolthurst Farm, Limpsfield), by Lewis G. Fry, R.B.A.
481 Fry W	"The Wood Cutter's Team" (Bolthurst farm, Limpsfield), by Lewis G. Fry, R.B.A.
481 Ham	"Haymaking near Epsom," by E. L. Hampshire.

481 Rap	"The Village Store" (Woldingham), by Miss I. Rappard.

[In the examples in 481 the artist being more important than the picture the arrangement is by the artist.]

522 Hel. A	Land mollusk, Helix aspersa.
523.51 Euc. C	Euchloë cardamines, Orange-tip butterfly.
526 Vip. B	Adder, Vipera berus.
527 Acc. P	Goshawk (Accipiter palumbarius), used for hawking and rat-catching by ——, Esq.
541(143) Bed	Beddington parish church.
541(143) Cro	Croydon parish church.
541(143) Mar	Church of St. Mary Magdalene, Croydon.

[When there is only one parish church in a locality the object mark is better taken from the village or town than from the dedication name, because it is generally more widely known by its locality. Even when there are several parish churches it is recommended to mark the principal one by the local name, and others by the dedication name (omitting the prefix "Saint"), as illustrated in the two Croydon entries, above.]

554(192)5 Sta C	British pottery, base of Cooking Pot, etc., found at British camp, Carshalton-on-the-Hill.
554(192)5 Sta C	Base of Cooking Pot, etc., as above.
554(192)5 Sta H	Handles, British pottery, as above.

[The foregoing descriptions illustrate the vagueness with which even experts sometimes refer to locality. The objects were found on a hill known as Stagg field ; this is made use of for the object number, not Carshalton-on-the-hill. Prehistoric objects should arrange by the place where found, rather than the place where kept, unless non-county.]

57(70)1 911.11.9 M	Croydon, election of Mayor, 9 Nov. 1911.
57(70)2 910.1.17 C	Cycle parade of Croydon Unionists, 17 Jan. 1910.
57(70)2 910.1.17 U	Croydon, Unionist meeting, 17 Jan. 1910.

[In the above examples of *Passing Events*, the place of the object mark is taken by a *date* mark, with a letter in the third place to distinguish different events falling on the same date.]

The purpose of both the object and view marks, as already explained, is to introduce an alphabetical arrangement where the systematic or class order leaves off. In some cases, however, when the number of views of one object is, or is likely to be, large, or when the class of object lends itself to such treatment, a special kind of view mark, which not only abbreviates the mark, but systematizes the order, will be found very convenient, and is illustrated by the tables in the next chapter in 489, 541, and 542. Similar tables might be constructed for other subjects; for example, a Survey having an exhaustive photographic representation of single trees or plants would mark in this way the tree in the different seasons, spring, summer, autumn, winter; the different parts, trunk, branches, root; and so on. The following examples show the application of the table in 541 *Churches* to some actual views of the Croydon parish church. They also indicate a method of abbreviating the *object* mark to a single letter, for objects of which the views are very numerous—

Examples of the Application of the Special Table for Marking Cathedrals and Important Churches.

541(143) C B.813	Croydon parish church and vicarage, 1813, general view.
541(143) C B.866	General view, 1866.

541(143) C B2.886	West front, 1886.
541(143) C B3.807	General view, from north west, 1807.

[The above entries incorporate the date with the view mark, advisable as a rule in the case of general views only. The digit in the thousands place is omitted.]

541(143) C C2n	North porch.
541(143) C Ge	Interior, looking east, about 1820.
541(143) C Gw	Interior, looking west.
541(143) C Ie	Nave, looking east.
541(143) C I3w	South nave aisle, looking west.
541(143) C Ka	View from south aisle, through chancel arch.
541(143) C Ke	East end.
541(143) C Ns	South chapel, with John Whitgift's monument.
541(143) C S2b	Memorial window to John Blake.
541(143) C S2e	East window.

541(143) C Tc	Arch in north wall of chancel.
541(143) C Un	North aisle screen.
541(143) C Uo	Organ screen.
541(143) C Ur	Rood screen and nave roof from altar steps.
541(143) C U2p	Piscina in south wall.
541(143) C U2s	Stoup in north wall.
541(143) C U2ss	Holy water stoup in south wall.
541(143) C Wf	Font.
541(143) C Wl	Brass lectern.
541(143) C Wp	Pulpit.
541(143) C Yb	Blocks with armorial bearings, from a tomb.
541(143) C Yf	Fragments from tomb recess.
541(143) C Yfn	Fragments from tomb recess in north wall.
541(143) C Yft	Three stone fragments in tomb recess.
541(143) C Z2s	South gate to churchyard.

The mounts having been arranged by their print numbers in a vertical file, some clue to the arrangement is best afforded by means of projecting guides. The manilla, cardboard, or fibre guides, with projecting tabs, in general use for vertical files, are not very well adapted for this particular purpose, especially if it is desired to guide the collection closely, and close guiding is almost a necessity for rapid reference and reinsertion. The manilla folder cut perfectly straight at the top makes an excellent guide, giving the requisite space and capable of being used to the utmost detail desired. The print marks and subjects are written on what is generally the back of the folder, as the folder is commonly employed in vertical filing in this country. It is recommended, however, that the higher or projecting portion of the folder should face the front, the lower leaf of the folder being behind. Methods of marking are indicated in the figures following, and it is only needful to make one or two observations to render the specimens self-explanatory. The most important principle in the use of the folder is that the marks and subjects indicated on the folder do not by any means imply that the contents of the folder are limited to the subject named. If this were so it would mean an altogether disproportionate number of folders being in use, as in many cases there may be only a single print bearing a particular class or subject mark. The contents of the folder are limited by the indication on the succeeding folder, thus in Fig. 26 the folder marked 321.1 *Shere Sheet—Water Views* may include mounts marked 321.2, 321.3, 321.4, etc., anything in fact coming between 321.1 and the number of the succeeding folder, 322.4. The number of prints in a folder being limited to about half a dozen, this will afford a general guide as to the number of folders to be used. If the class mark is not sufficient to differentiate between the contents of one folder and another, then the object mark is added, and the view mark also if need be. When the number of prints in a folder reaches the maximum a new folder is inserted at that place and the contents conveniently redistributed. The subject represented by the class mark is written in a small printing hand immediately below the edge of the folder, any subordination of topic being marked by a dash. The large class groups such as *Topography*, *Art*, and so forth, need not be noted, or may be noted on the first folder of the series only. The signification of the object and view marks is written on a second line immediately below the translation of the class mark, again separated by a dash.

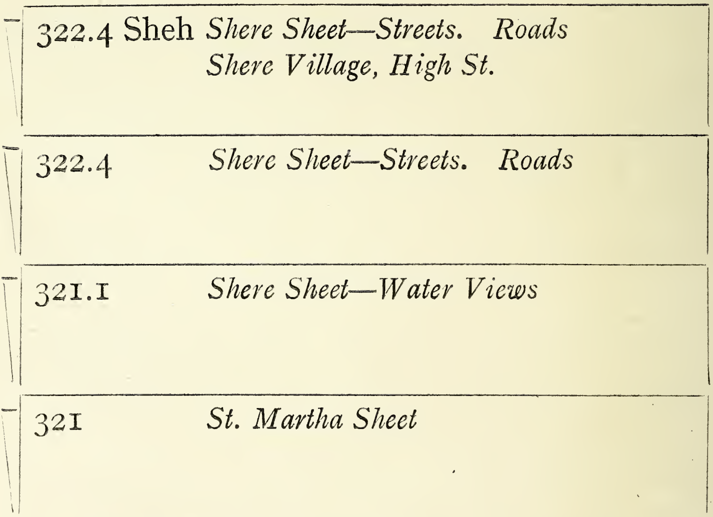

322.4 Sheh *Shere Sheet—Streets. Roads*
Shere Village, High St.
322.4 *Shere Sheet—Streets. Roads*
321.1 *Shere Sheet—Water Views*
321 *St. Martha Sheet*

FIG. 26.—Method of guiding folders. Topography.

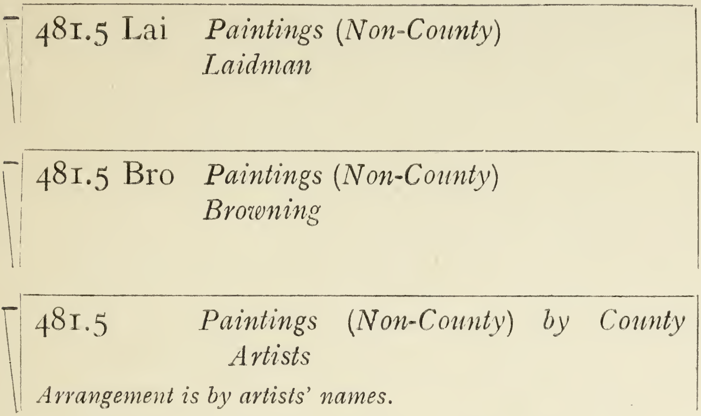

481.5 Lai *Paintings* (*Non-County*)
Laidman
481.5 Bro *Paintings* (*Non-County*)
Browning
481.5 *Paintings* (*Non-County*) *by County Artists*
Arrangement is by artists' names.

FIG. 27.—Method of guiding folders. Art.

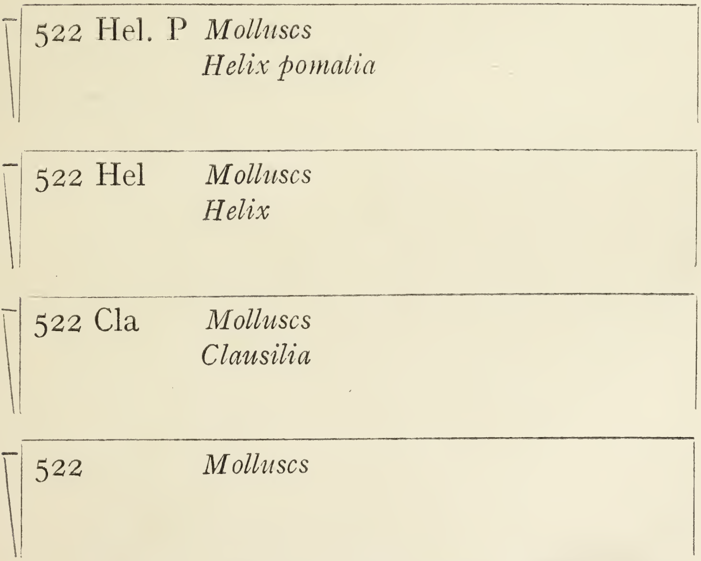


FIG. 28.—Method of guiding folders. Biology.

541(183) Sto W	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon — Ritual Furniture*
541(183) Sto V	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon—Roofs*
541(183) Sto N	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon—Chapel*
541(183) Sto C	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon—Exterior, Doorways*
541(183) Sto B8	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon—Exterior, South*
541(183) Sto	*Churches—Stoke D'Abernon Sheet* *Stoke D'Abernon*
541(181) Cob K	*Churches—Cobham Sheet* *Cobham—Choir*

541(181) Cob *Churches—Cobham Sheet*
Cobham

FIG. 29.—Method of guiding folders. Architecture.

57(70) 6 906.6.20 E *Croydon — Business Events*
E. Surrey Agricultural Show

57(70) 1 911.11.10 *Croydon—Public Functions*

57(70) 1 911.11.9 M *Croydon—Public Functions*
Mayor making

FIG. 30.—Method of guiding folders. Passing events.

The question of a CATALOGUE OF PRINTS is by no means a simple one. A systematic subject catalogue might be made on cards by simply arranging the cards like the prints themselves in the order of their class marks, repeating the local entries under a reference number consisting of the topic number with the local map or administration area number in front, as indicated on p. 102. Such a catalogue would not, of course, answer certain questions which would require for their answering an additional catalogue alphabetically arranged under specific headings. These two catalogues would correspond to the catalogues known to librarians as the *Subject* and *Author* Catalogues respectively; or the two catalogues may be combined and thrown into one alphabetical sequence, corresponding to the type of catalogue known to librarians as the *Dictionary* catalogue. In either case there would still be required an Index of Subjects to the class headings. These records would mean, of course, a great deal of work and skill to prepare, and they would take up a good deal of space. A catalogue of 6000 prints would require at least a twelve-drawer card cabinet to contain it. Moreover, many of these cards would merely duplicate the information contained on the labels of the prints themselves, and in the case of a systematic catalogue would duplicate the very arrangement of the prints. The authors believe that the work of providing these catalogues will hardly be worth while, unless time, skill, and space are negligible quantities. All the practical needs of the consulter can be met by a brief index of subjects. In the case of such an index particulars of individual prints would not as a rule be entered, but only references to subjects or objects represented; in many instances a single index reference would cover a considerable number of prints. It must be remembered that with a collection minutely and systematically arranged the need for a catalogue is by no means so insistent as is the case when the collection is either not arranged in any particular subject order at all, or classed only in local groups. Neither a catalogue nor an index can be satisfactorily compiled by "the light of nature"; the work is skilled and requires experience, or at all events skilled supervision.

A general idea of the forms of entry which make up the " Index of Subjects and Objects " may, however, be gathered from the specimen card entries shown. These are grouped for convenience of illustration under particular class headings, but in the index itself, of course, they would be thrown into a single alphabetical sequence. In order to limit the size of the index it is recommended that zoological species be ignored. In some cases (*e.g.* most prints in *Passing Events*) no entry worth making can be made, and therefore no entry should be made. This consideration furnishes an argument against the catalogue; a catalogue should be complete, every print being represented by at least one entry; but an index labours under no such necessity. If it is impossible to place a print under a heading under which it is likely that any one will look for it, it is a waste of time and space to index it at all.

1

301.4	Cas	tle street, Farnham.
Cas		

2

.5	Com	mons.
		Marked by above figure added to
	the	topographic numbers 014–471.

3

301	Far	nham, topography.

4

274	God	stone, topography.

5

274.1 God	God	stone pond.

6

283	Lim	psfield, topography.

7

283.5 Lim	Lim	psfield common.

8

.1	Pon	ds.
		Marked by above figure added to
	the	topographic numbers 014–471.

9

004 Smu	Smu	ggler's lane.

10

.4	Str	eets.
		Marked by above figure added to
	th	e topographic numbers 014–471.

11

281	Tit	sey, topography.

12

281.2 Tit	Tit	sey woods.

13

301.4 Wes	Wes	t street, Farnham.

FIG. 31.—Sample cards of Index. Topography. Entries 1, 5, 7, 9, 12, 13 are *specific*; 2, 8, 10 are *subject*; 3, 4, 6, 11 are *local*.

1

481 Fry	Bol	thurst farm, Limpsfield. Paintings by Lewis G. Fry.

2

481 Fry	" Fee	ding the Chickens." Painting by Lewis G. Fry.

3

481 Fry	Fry,	Lewis G. Artist, Surrey scenes.

4

481 Fry	Limpsfield, Bolthurst farm, Paintings by Lewis G. Fry.

5

481	Paintings representing scenes in Surrey,

6

481 Fry W	"Wood Cutter's Team." Painting by Lewis G. Fry.

FIG. 32.—Sample cards of Index. Art. Entries 2, 6 are *specific*; 5 is *subject*; 1, 4 are *local*; 3 is *personal*.

1

527 Acc	Accipiter, genus birds

2

526 Vip	Adders, vipera, genus reptiles.

3

527	Aves.

4

527	Birds.

5

523.51	But	terflies.

6

523.51 Euc	Euc	hloë, genus butterflies.

7

522 Hel	Hel	ix, genus molluscs.

8

523.5	Lep	idoptera.

9

522	Mol	luscs.

10

526	Rep	tiles.

11

523.51	Rho	palocera.

FIG. 33.—Sample cards of Index. Zoology. Words underlined indicate *genera*. Species are not indexed.

1

541(143)	Bed	dington, churches.

2

541(143) Bed	Bed	dington parish church.

3

541	Chu	rches.

4

541(143)	Cro	ydon, churches.

5

541(143) C	Cro	ydon parish church

6

541(143) C	Joh	n, St., church, Croydon.

7

541(143) Mar	Mar	y Magdalene, St., church, Croydon.

Fig. 34.—Sample cards of Index. Architecture. Entries 2, 5, 6, 7 are *specific*; 3 is *subject*; 1, 4 are *local*.

1

554(192)5 Sta	British pottery, found at Stagg field, Carshalton-on-the-Hill.

2

445(192)5 Sta	Carshalton-on-the-Hill. Pottery found at Stagg field.

3

554	Iron age.

4

554(—)5	Pottery, iron age.

5

554(192)5 Sta	Stagg field, Carshalton-on-the-Hill, pottery found.

FIG. 35.—Sample cards of Index. Antiquities. Entry 1 is *specific*; 3, 4 are *subject*; 2, 5 are *local*.

LANTERN SLIDES are clearly as susceptible to classification as other pictures, and call for no special treatment. Whenever possible the print mark and description should be entered on the white or lantern side of the mask before the cover glass is put on, and for this reason lantern slides should be sent in without being bound. The print mark should also be carried on to the top edge of the slide, so as to be visible when the slides are stored on edge in the box or drawer. If the slide is already bound by the ordinary black or coloured strip, a thin strip of white paper, cut to size, should be firmly pasted over the top part of the original strip, and the record made on that.

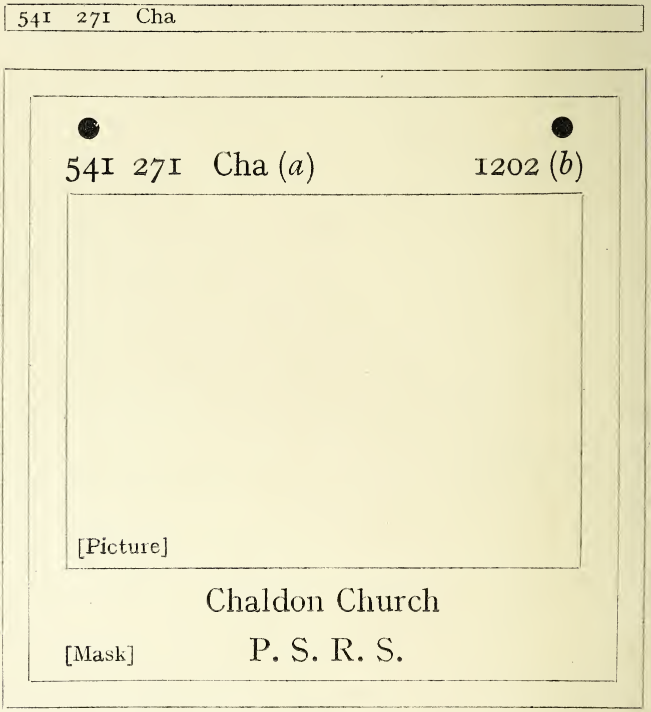


FIG. 36.—Records on lantern slide. (*a*) Print mark. (*b*) Register or accession number.

Where, as will often be the case, the subject matter of a slide is represented by a print in the collection, an indication of this may be given by a rubber stamp or other suitable means, on the print mount. But where a slide constitutes the only record it will be found convenient to intercalate a mount among the prints bearing merely a title reference to the slide.

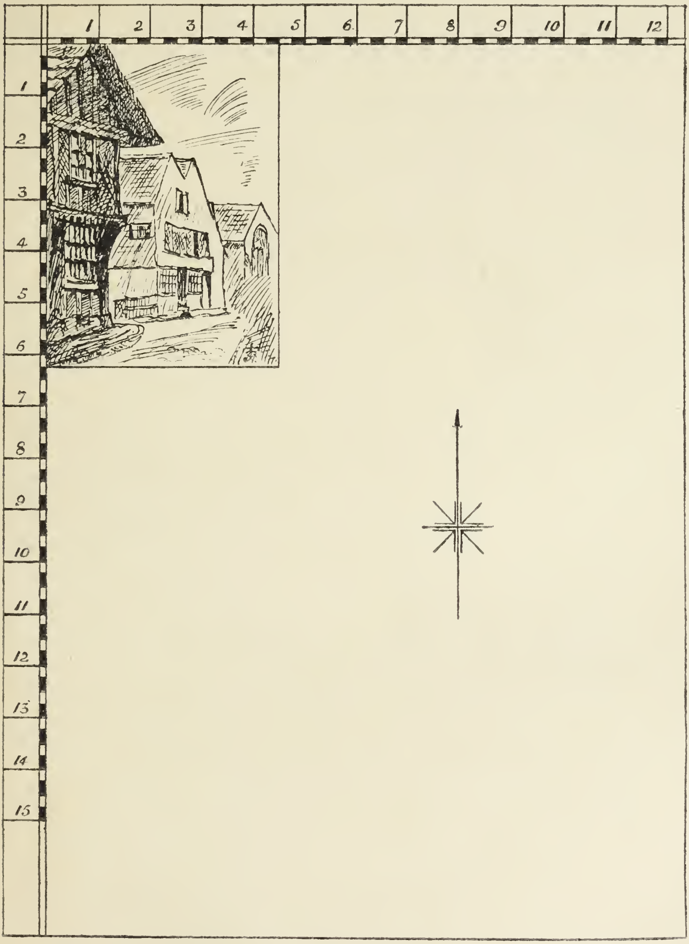


FIG. 37.—Card scale, for quickly obtaining sizes of prints.

Mention has not been made hitherto of the fundamental record of a survey collection, viz.: the REGISTER OF PRINTS. This is usually kept by the secretary, and should consist of a strongly bound book, with good quality paper, numbered in folio, and ruled with columns giving the following information: Number / Class Mark / Date of Receipt / Date Taken / Name of Contributor / Society Represented / Locality / Subject / Size / Remarks. The "number" is a running number, indicating the order of accession. The "size" is the size of the print when trimmed, and in preference to measuring by a rule a card should be made like that shown in Fig. 37. Along the top and down the left-hand side of a piece of white card, some 12 in. wide × 18 in. high, are drawn one-inch scales, subdivided into quarter-inches. The print is laid in the angle between the two scales, and its size to the nearest quarter-inch is readable at a glance. The compass points drawn on the card are a useful addition, as they will in many cases give the direction in which the print is taken, and serve to check errors which are apt to creep in in this item of the contributor's label slip, especially in ecclesiastical architecture.

CHAPTER VII

DETAILED SUBJECT CLASSIFICATION FOR A COUNTY COLLECTION OF SURVEY PHOTOGRAPHS

Preliminary Note.—The general principles underlying these tables have already been explained in the preceding chapter, in which also directions are given for applying further marks to secure any desired arrangement within the limits of the class unit.

It seems necessary here only to repeat that the numbers are decimal, *i.e.*, are supposed to have a decimal point in front of them (not marked in practice), and that any further subdivisions may be indicated by simply adding figures to the right, when there are no vacant numbers left in the table.

The decimal point is used after every third figure.

Table of Main Classes.

01–47	Topography.
48	Art.
49	Literature.
50	Geology.
51	Palæontology.
52	Zoology.
53	Botany.
537	Horticulture and agriculture.
54	Architecture.
55	Antiquities.
56	Meteorology.
57	Passing events.
58	
59	

(60–99) County divided by boroughs, urban and rural districts, etc.

For special use where indicated, when the divisions of 01–47 cannot conveniently be employed. See note under these figures in the full tables following.

Table of Classes, Divisions, and Sections.

Important.—No one should apply this Table without reading carefully Chapter VI, in which important explanations as to the method of employing the table are given.

01–47 Topography.

These numbers are those of the 6-in. sheets of the Ordnance Survey of Surrey. The majority of English counties contain more than 47 Ordnance sheets, and in such cases a third figure must be employed to designate certain sheets. Thus, suppose we have 200 sheets to mark; this is 153 over our two-figure table. As a third figure will yield nine more divisions, we shall require to carry out seventeen (153÷9=17) of our two-figure numbers to the third place in order to provide for our 200 sheets. Thus our table will run:—

01
02
03
and so on to:
29
then:
300*
301
302
303
and so on to:
479

* Not 30.

The quarter-sheets of each sheet, which are distinguished in the Ordnance Survey by the compass points, are marked in this classification by the figures 1–4 added to each sheet number. Thus:

¼ sheet

26NW	is marked	261
26NE		262
26SW		263
26SE		264

Of course, when three figures are employed to designate the sheets, the quarter-sheet figure occupies the fourth place. Thus 3001 will mean sheet 300, quarter-sheet NW.

In classifying, all administrative boundaries are ignored, and photographs take the number of the quarter-sheet in which the objects photographed are found. But only purely topographic prints come here. Others are classed with their subject elsewhere, *e.g.*, all Architectural prints in 54 Architecture, Passing events in 57; and so on.

Use 00 for prints of which the locality cannot be determined.

When the quarter-sheet numbers are employed to subdivide other topics as indicated by the instruction "subdivided topographically like 01–47," they are enclosed in brackets, thus showing at once that the subdivision is local, *e.g.*, 541 (142) Churches in quarter-sheet 142.

All matter in 01–47 is finally subdivided by adding the figures of the following table:

Table for Subdividing Matter in 01–47.

1 Water views, rivers, streams, ponds, canals.

But views on rivers and canals are best put in the number of the particular river or canal in 502 River courses.

2 Woods, parks, landscape gardens, cemeteries.

3 Hills and valleys.

4 Streets, roads, paths, rail and tram tracks.

See note under 54 Architecture, as to use of this number for streets.

5 Commons and heaths.

6 Stiles, gates, direction posts, milestones, boundary marks.

7 Rocks. Caves.

8

9 Panoramic and distant views.

48 Art.

481 Paintings, drawings and engravings representing scenes in the county.

Prints which are valuable mainly as topographic records go in 01–47, not here. Here belong views in which the artist is more important than the view.

481.5 Paintings, etc., not representing the county, but by county artists.

481.9 Other paintings, etc.

That is, belonging to collections in the county. The same remark applies to heads 482.5–488 below.

482 Sculpture, by county artists.

482.5 Other sculpture.

Material in 481–482.5 arranges by names of artists.

482.9 Carving.

483 Art work in metals.

484 Pottery and glass.

485 Tapestry, lace, and other fabrics.

486 Furniture.

Church furniture goes with the church in 541.

487 Crafts. Industries.

488 Other objects of art.

489 Portraits and other biographical material.

Of persons connected with the county only. Other portraits will go in 481.5 or 481.9 as the case may be.

Arrange portraits, of course, by names of persons. In the case of a distinguished county worthy it may be wished to assemble material illustrating his life around his portrait. The following special table may then be used:

Special Table for Final Marking of Material in 489.

Note.—The letters of this table are used after the class and name mark have been given, thus a portrait of John Whitgift, Archbishop of Canterbury, is marked 489 Whi A, or if there are several portraits a lower-case letter is added, thus, 489 Whi Am, engraving by Meyer, 489 Whi Av, engraving by Vertue. But see pp. 112 *et seq.*

Portraits

A of the subject.

B of his parents

(B will take both parents together; mark father separately, B2; mother B3 grandfather B4; grandmother B5.

C Other members of his family.

C2 Brothers; C3 Sisters; C4 Uncles; C5 Aunts; C6 Cousins.

D His wife.

Mark second wife D2, etc.

E His children.

F His friends, etc. (*e.g.*, schoolmasters).

G	Caricatures.
H	Personations. In marking actors, etc.
J	Pets.
K	Birthplace.
L	Later residences, except :
M	Deathplace.
N	Incidents in his career.
P	Scenes associated with him.
Q	Grave.
R	Other memorial monuments, statues, etc.
S	Memorial objects.
T	His sketches, drawings, etc. If not going better in Art in 48.
U	Institutions founded, endowed, or benefited by him.
V	
W	
X	
Y	Autographs, Facsimiles, Book plates.
Z	Other. *Coats of arms* in 559.3. *Brasses* in 559.25.

49 Literature.

Here come photographic facsimiles of title-pages, manuscripts, etc.

491	Books on the county by county authors.
492	Books on the county by non-county authors.
493	Miscellaneous books by county authors. That is, other than books on the county 491.

494 Other books.

Not dealing with the county, but contained in county collections. The same remark applies to the "non-county" heads below.

495 Broadsides (county).
495.5 Bills, notices, proclamations.
495.7 Broadsides (non-county).
496 Manuscripts (county).
496.5 Charters.
496.6 Deeds.
496.7 Manuscripts (non-county).
497 Autographs (county). Bookplates.

But autographs and book-plates of individuals go in 489.

497.5 Autographs (non-county).
498 Maps and plans (county).

Subdivided topographically like 60–99, using 498 to mark maps of the county as a whole.

498.5 Maps and plans (non-county).
499

50 Geology.

501 Land contours.
502 River courses.
502.1
502.2
502.3
502.4
502.5
502.6
502.7
502.8
502.9

These numbers are left blank for names of individual rivers, and canals. It is recommended to place *all* views of and on rivers here rather than in 01–47.

503 Sections.
504
505
506
507
508
509

All these divisions are subdivided topographically like 01–47.

51 **Palæontology.**

The divisions below are the same as those of 52 *Zoology* and 53 Botany, and the arrangement under class numbers is by genus and species as in the main classes 52 and 53.

Zoology.

511 Pond life.
512 Molluscs.
513 Insects.
513.1 Orthoptera.
513.2 Neuroptera. Pseudoneuroptera.
513.3 Hymenoptera.
513.4 Coleoptera.
513.5 Lepidoptera.
513.51 Rhopalocera. Butterflies.
513.53 Heterocera. Moths.
513.55 Microlepidoptera.
513.6 Diptera. Flies.
513.7 Hemiptera Heteroptera.
513.75 Hemiptera Homoptera.
513.8 Myriapoda.

513.9	Arachnida. Spiders.
514	Crustaceans.
515	Fishes.
516	Reptiles and Batrachians.
517	Birds.
518	Mammals.
519	Botany (fossil).
519.2	Phanerogamia.
519.3	Dicotyledonæ.
519.4	Monocotyledonæ.
519.5	Gymnospermæ.
519.6	Cryptogamania
519.61	Pteridophyta.
519.62	Filicinæ. Ferns.
519.63	Bryophyta.
519.64	Musci. Mosses.
519.65	Thallophyta.
591.66	Lichines.
519.67	Fungi.
519.68	Algæ.

52 Zoology.

521	Pond life.
522	Molluscs.
523	Insects.
523.1	Orthoptera.
523.2	Neuroptera. Pseudoneuroptera.
523.3	Hymenoptera. Bees, wasps, ants, etc.

523.4	Coleoptera.
523.5	Lepidoptera.
523.51	Rhopalocera. Butterflies.
523.53	Heterocera. Moths.
523.55	Microlepidoptera.
523.6	Diptera. Flies.
523.7	Hemiptera Heteroptera. Bugs.
523.75	Hemiptera Homoptera.
523.8	Myriapoda.
523.9	Arachnida. Spiders, etc.
524	Crustaceans.
525	Fishes.
526	Reptiles and Batrachians.
527	Birds.
528	Mammals.
	The arrangement under class numbers is alphabetical by genus and species.

53	**Botany.**
531	Trees, old, historic, or illustrating peculiarities of growth.
	Subdivided topographically like 01–47.
532	Phanerogamia.
533	Dicolyledonæ.
534	Monocotyledonæ.
535	Gymnospermæ
536	Cryptogamia.
536.1	Pteridophyta.
536.2	Filicinæ. Ferns.
536.3	Bryophyta.
536.4	Musci. Mosses.

536.5 Thallophyta.
536.6 Lichines.
536.7 Fungi.
536.8 Algæ.

The arrangement under these class numbers is alphabetical by genus and species, except in the case of 531.

537 Horticulture and agriculture.

General views of farms and gardens (but landscape gardens go in topography) are marked 537 and subdivided by the topographic numbers 01–47.

537·1 Floral displays and other plant arrangements.
537·2 Views in conservatories and greenhouses.
537·3 Outdoor plants.
537·4 Greenhouse plants.

537·3–·4 arrange alphabetically by genus and species. Florists' varieties may be marked thus:

Class.	537·3	Outdoor plants
Genus. Species.	Cro. V	Crocus versicolor
Variety.	Q	Queen Victoria

537·5 Fruits. Orchards.
537·6 Crops.
537·7
537·8 Domestic animals.

54 Architecture.

The heads below, 541–48, are subdivided like Topography 01–47.

An interesting problem of classification confronts the classifier in this division, namely where should a view of groups or lines of buildings, as in a street, go, here or in 01–47 Topography? The obvious place seems Architecture, but in that case where is the line between a street and a road to be drawn? A road without any buildings lining it is clearly Topography, but at what precise point may buildings make it a street, a street being merely a road with buildings on one or both sides. No such distinction can be made to be of any practical use. Moreover, a country road to-day may be entirely built up to-morrow, and it is desirable to have all views of a given travel way together, showing it, if that be possible, both before and after its transformation from country to town. Street views then should be classed in 01–47, with the subdivisional number 4 (streets, roads, etc.) from the "Table for subdividing matter in 01–47" added.

541 Churches.

Class pulpits, fonts, piscinas, and generally speaking all *structural* furniture with the church. Other furniture, *e.g.*, a church chest, will go in 559.1 Ecclesiastical antiquities; even if the object is modern put in 559.1; it will become an antiquity in due course.
Tombs go in 548.
For arrangement of parish churches in a quarter-sheet, see note and examples in preceding chapter, p. 110.
In the case of a cathedral or abbey or other large and important church, the views may be numerous and need further classification. The following special letter table is recommended for this purpose:

Special Table for Marking Cathedrals, Abbeys, and Important Churches.

NOTE.—For explanation and examples of the use of this table, see pp. 112 *et seq.*

A Plan.

B Exterior. Distant and general views.
  B2 west front, 3 north-west, 4 north, 5 north-east, 6 east end, 7 south-east, 8 south, 9 south-west.

C Doorways.
  C2 Porches. C3 Windows.

D Arches. Arcading.
  D2 Pillars.

E Towers. Campanile.

F Ambulatory. Cloisters.

G Interior. General views.

H Porch.
  H2 West transepts.

I Nave.
  I2 North nave aisle. I3 South nave aisle.

J Transepts.
  J2 North transept. J3 South transept.

K Choir. Chancel.
  K2 North choir aisle. K3 South choir aisle.

L Triforium.
  L2 Clearstory.
M Retro-choir.
N Chapels.
  N9 Baptistery (when a separate part of the church or screened off).
O Chapter house.
  O2 Library.
P Crypt.
Q Vestries and other rooms.
R Monuments. Tombs. Shrines.

Monuments and tombs are recommended to be classed apart from the church in 548, but some may prefer this place.

S Doorways.
  S2 Windows.
T Arches. Arcading.
  T2 Pillars.
U Screens.
  U2 Walls and wall openings (*e.g.*, stoups, piscinas).
V Roofs.
  V2 Pavements. Floors.
W Ritual furniture.
X Ornamental details.
  X2 Figures.
Y Miscellaneous objects and antiquities.
Z Cathedral precincts.
  Z2 Gateways.

542 Residences.

As in the case of certain churches, so here, the prints depicting a castle or hall may be numerous enough to justify the application of a supplemental letter classification as under:

Special Table for Marking Castles, Halls, etc.

A	Plan.
B	Exterior.
C	Entrances. Gateways.
D	Courts (inner).
E	Walls. Fortifications. Moats.
F	Towers. Keep.
G	Hall. Stairways. Corridors.
	G5 Doorways.
H	Drawing room.
	H2 Morning room. H4 Boudoir.
J	Breakfast room.
	J2 Dining room.
K	Library.
	K5 Study.
L	Ball room.
M	Picture gallery.
N	Chapel.
P	Smoking room.
	P2 Billiard room. P3 Card room, etc.
Q	Bedrooms. Dressing rooms.
R	Kitchen. Domestic offices.
S	Cellars. Dungeons.
T	Other rooms.
U	Architectural details.
V	Pictures. Statuary. Art objects, etc.
	Better in 48 than here.
W	Other furniture.
X	Conservatories.
	Views in conservatories are better in 537.2.

Y Stables. Outbuildings.
Z Miscellaneous.

543 Schools, asylums, almshouses, workhouses, etc.

544 Business buildings, *e.g.*, shops, markets, factories, offices, banks, etc.

545 Imperial and local government buildings, *e.g.*, town halls, police and fire stations, post offices, etc.

546 Public halls, meeting rooms, theatres, clubs, societies, hotels, etc.

547 Railway stations, bridges and other engineering structures.

548 Statues, fountains, wells, sundials, memorial monuments, inscriptions.

If in memory of particular families or individuals they go in 489. This is general and miscellaneous.

548.5 Miscellaneous structures.

Not going clearly under any of the foregoing heads.

549 Buildings and sites associated with some particular person or event.

That is, where the association is more important than the building *e.g.*, Dick Turpin's house. Arranged by person or event.

55 Antiquities.

Prehistoric.

551 Palæolithic age.
552 Neolithic age.
553 Bronze age.

554 Iron age.

551–4 subdivided like 01–47, and further divided as under :

1 Camps.
2 Dwellings.
3 Interments.
4 Implements.
5 Pottery.
6 Ornaments.
7 Miscellaneous finds.

For note and examples of object marks applied to prehistoric antiquities, see preceding chapter, p. 111.

Historic.

555 Coins. Medals.
556 Legal.
557 Domestic.
557.2 Trade.

E.g., trade signs.

557.4 Communication.
558 Costumes and articles of personal adornment.
559.1 Ecclesiastical.

E.g., bells.

559.2 Funerary.
559.25 Brasses.
559.3 Heraldic. Seals.
559.4 Games.
559.5 Manners and customs. Popular life.
559.6 Military.
559.9 Other antiquities.

56 Meteorology and Astronomy.

561 Cloudscapes.
562 Frost effects.
563 Lightning.
564 Halos.
565 Auroræ.
566
567 Eclipses.
568 Comets, meteors.

57 Passing events.

The topographic divisions of 01–47, being based on the mathematical divisions of the Ordnance Survey, are unsuited for subdividing the subject of Passing events. These are centred in towns, villages, etc., and therefore the topographic divisions of 60–99 should be used. The material is then to be further divided as under:

1. Public functions.
E.g., mayor-making, civic receptions, banquets, etc.
2 Political. Elections.
25 Legal. Crime.
3 Religious.
4 Educational.
42 Artistic. Scientific. Literary.
5 Social and charitable.
52 Military.
6 Business, *e.g.*, Markets, fairs, etc.
But pleasure fairs go in 7.
7 Sports and amusements. Carnivals. Pleasure fairs.

8 Fires, floods, and other accidents.

9 Other events.

The secondary arrangement is chronological. The date number is composed of the year (omitting the thousand), the month, and the day; a letter is added to distinguish the particular event; *e.g.*

57(70)8 Fire at Croydon.
898.7.4 4 July 1898.
F

The class number in the above example is thus built up

57 =Passing events.
(70) =Number for Croydon in Surrey subdivisions of 60–99.
8=Fires.

57(70)8

(60–99) County divided by towns and districts.

In the case of one or two subjects, *e.g.*, 498 Maps and plans, and 57 Passing events, the mathematical divisions of 01–47 Topography, corresponding as they do only with the sheets of the ordnance maps, do not conveniently apply. An alternative division of the county by towns and districts is recommended for these cases, and the numbers 60–99 are left to be appropriated for this purpose. Where it is wished to arrange a county collection of *books* also as well as prints these numbers might be used, as suggested in Chapter V.

As these numbers are used here only for subdividing other numbers they are enclosed in brackets, as is the case with the divisions of 01–47 when employed for the same purpose.

The following portion of the table of Surrey divisions will indicate the method of applying the numbers to any other county:

(60) Surrey, general.

Broad Divisions.

(61) Surrey North.

N. of sheets 22–27 in 6-in. Ordnance Survey.

(62) Surrey South.

S. of sheets 15–20 in O.S.

(63) Surrey East.

E. of sheets 5, 11, 17, 24, 32, 39, 46 in O.S.

(64) Surrey West.

W. of sheets, 1, 6, 12, 18, 25, 33, 40, 47 in O.S.

Borough, Urban and Rural Districts.

The following abbreviations are made use of:

C.B.	County Borough.
M.B.	Municipal Borough.
U.D.	Urban District.
R.D.	Rural District.

Rural districts are subdivided into Parishes. These are the Civil Parishes, but for classification purposes they may be regarded as identical with the Ecclesiastical Parishes.

(65) Barnes. (U.D.)
(66) Carshalton. (U.D.)
(67) Caterham. (U.D.)
(68) Chertsey. (U.D.)
(69) Chertsey. (R.D.)
(691) Bisley.
(692) Byfleet.
(693) Chertsey.
(694) Chobham.
and so on to:
(81) Godalming. (M.B.)
(82) Godstone. (R.D.)
(821) Bletchingley.
and so on to:
(828) Lingfield.
(829.1) Oxted.
(829.2) Tandridge.
(829.3) Tatsfield.
etc.

The marking of the parishes under Godstone in the foregoing example illustrates the method of procedure when the number of parishes to be marked is over 9, the largest number which can be marked with a digit in the third place. The same principle illustrates the procedure when the main county divisions are more than can be marked with the two-digit numbers from 60 to 99; one may begin a basis of three digits at any point. Thus the two-digit numbers 65 to 89 may mark the first 25 districts (excluding the "compass" divisions) of the county; then we may change to a three-digit basis, marking 900, 901, 902, etc., then 910, 911, 912, etc., to 999, thus marking another 100 districts.

CHAPTER VIII

POPULARIZING THE WORK OF A SURVEY

SINCE the amount of work which can be done by a Survey Society is naturally dependent to a great extent upon the number of its adherents and voluntary workers, and the movement is as yet far from being widely known, no opportunity should be lost by those interested in it for attracting public attention to the Society and the results it has attained—in a word, for advertisement.

Among other means to this end, few are more effective than Lantern Lectures, Exhibitions, and Excursions ; the two former in particular are convincing as to the value of the work being done.

LECTURES.

It should be the aim of those responsible for the work of the Association to secure, at an early stage of its existence, a sufficient number of lantern slides to comprehensively illustrate its activities. Round these may be woven lectures which, if offered to the various clubs or societies in the district, will often be accepted as an item in the season's programme. Church, Chapel, and other Debating Societies will often gladly avail themselves of such a lecture, and it will generally be welcomed by photographic clubs, whose secretaries are often hard put to it to eke out their winter fixture list, while School Scientific Societies may be found worth cultivating.

Wherever possible a lecture dealing with survey work should be given by a speaker conversant with, and enthusiastic about, the subject. A lecture delivered from manuscript written by another may be finished in style and convincing in matter, but it lacks the "grip" and forcefulness of one given by a speaker who is charged with his subject.

It should not be difficult, once a sufficient number of slides are got together, to arrange among officials or members of the council a rota from which lecture engagements can be filled. The available subject-matter of a lecture, dealing with survey work and illustrating the kinds of records desired, is so abundant that little or no preparation is required to enable an interesting address to be given. But to meet cases where no one can be found to deliver the lecture, it will be advantageous to keep what may be termed a "stock" manuscript which, with the appropriate slides, can be sent from place to place. The audiences will rarely overlap to any great extent.

Perhaps it may be useful to give a brief indication of the ground work or outline of a lecture that has been so prepared and found to not only arouse interest, but to lead to the accession of members and the affiliation of societies. The nature of the slides which should illustrate it is shown in the left-hand column, the headings of the lecture on the right. Stress will naturally be laid on the subjects of record or the methods of work according to whether the audience is general, special, or photographic.

1.	Title slide for badge of Survey Society if one has been designed.	Public value of photographic records, their special qualities of authenticity and accuracy, and ease with which they are obtained. Need for systematic taking and collation of records. Waste involved by photographs remaining in private hands, un-co-ordinated and inaccessible. Record work an added pleasure to amateur photographers. Rise and development of Photographic Survey movement. Its appeal to individuals and societies.
2.	Objects and work of Survey Society.	
3.	Constitution of Survey Society.	
4.	Method of classifying collection.	Method by which collection is made available for public consultation.
5.	Form of slip to be filled in by contributors of prints.	Data necessary to make record of the greatest value, *e.g.* date taken, time of day, direction of camera. Points of special interest in subject.
6.	Illustration of "compass point."	Explain significance of "compass point": this may mean either aspect of subject or direction in which camera is pointing. Explain in which sense used in collection.

Slides illustrating special apparatus useful in survey record work.

Explain apparatus specially useful and easily home made, *e.g.* tilting table, vertical copying device, etc.

About 30 slides illustrating subjects dealt with in collection.

Enumerate headings of subjects sought for, illustrating as far as possible with slides of local interest, which briefly describe, under the following headings or some of them :—

Anthropology.

Antiquities.

Art and Literature (Old MSS, etc.).

Zoology.

Botany.

Geology.

Topography.

Passing Events, *e.g.* customs, processions, public functions.

Portraits of notabilities.

Importance of securing Prints from negatives now in private hands of subjects no longer available for Record.

Lectures given for the purpose of stimulating record work need not, however, necessarily, be of the general character above indicated. It may be found possible to secure the services of lecturers specially acquainted with particular subjects, who will incidentally bring out the value of record collections. The number of lectures of this character which may be organized is limited only by the number of competent lecturers whose services can be enlisted. A series of six such specialized lectures was so organized by the authors and others, and given with success at the Crystal Palace in 1908.

EXHIBITIONS.

Closely allied to the work of propaganda by means of lectures is the organization of exhibitions representative of the collection. The public display of prints from a record collection involves necessarily some risk of injury, possibly of occasional loss. Where duplicate prints can be obtained of interesting records, these may with advantage be kept, as a supplementary collection, for this purpose. In practice it will often be found that many records cannot be easily obtained in duplicate, and the question of how far any part of the main collection shall be exposed to risk then becomes one which should be dealt with, as a matter of principle, by the Council or Committee of the Record Society. Bearing in mind the facts that it is of the utmost importance to let slip no opportunity of making the movement known, and that a display of prints will often bring new workers into the ranks with the probability of consequent additions to the collection, the authors think that the policy pursued in this direction should not be an unduly timorous one.

Of course, no irreplaceable record of supreme value would be exposed to risk; but the collection as soon as it attains any magnitude will comprise records which, though extremely interesting in themselves, may be risked for the sake of gaining others.

A judicious arrangement with those to whom records are lent, fixing responsibility for their safe custody and return on some one individual, will tend to minimize the risk of loss or damage.

The foregoing observations apply with equal force to the loan of lantern slides from a record collection. Slides are, of course, subject to special risks of damage in transit, and the use of suitable carrying cases should always be insisted upon. With regard to lantern slides, so far as they are duplicated by prints in the collection, their loss, though regrettable, would not be disastrous.

Weight should, the authors think, be given to the consideration that the collection is, after all, got together for the public advantage, and lantern slides may serve a definitely useful educational purpose. Where their use is required for such ends, the society should not be too chary of running some risk.

The method of display of prints is a matter worthy of some consideration. Undoubtedly where they can be shown under glass this is the method to adopt, but the cost of so exhibiting them will often be found prohibitive, even if consideration of space in the apartment appropriated to the purpose admit of this way of showing them.

If it be possible to affix to a wall narrow horizontal strips of wood with a slight rebate on which the mounts may stand, leaning against the wall, they can easily be prevented from slipping down by tightly stretching in front of them one or two thin dark threads or wires.

This idea has been effectively made use of in the lecture room attached to the Croydon Central

Public Library, the walls of which are frequently used to display series of prints of special subjects. Here two horizontal strips of 1¼-inch picture moulding, recessed in the upper face, are carried round the room at heights of 4 ft. 6 in., and 5 ft. 8 ins. from the floor respectively. About 10 to 12 ins. above each of these is stretched brass picture wire, which can be tightened up by square thumbscrews at one end, the tightening-up being done by square threaded screws and fly nuts which pull the wire taut without twisting or turning the strands. In this way it is found possible to effectively display on the walls of a room 36 ft. × 22 ft. about 240 prints on mounts 11 by 13 ins.

In cases where even such slight mutilation of a wall surface as results from the use of drawing pins or tacks is inadmissible, an inexpensive and efficient plan is to construct light frames of thin battens as shown in Fig. 38. The mounts can be held in position on the horizontal battens (which should, of course, be in front when the frame is placed in position) by passing in front of them thin horizontal threads or wires at top and bottom, these being made to press the mounts tightly against the supports by lightly tacking small "town clout" nails (say thin ½ in.) below each mount, giving the wire or thread a turn round each nail, and then driving it tightly home. Such an arrangement, though it may appear primitive, has been found to effectually serve for the display of prints during an exhibiton lasting a week.

The threads or wires can be more quickly stretched if "dished" washers are screwed against the battens before the wires and prints are placed in position. A sketch of this method of displaying prints is also given.

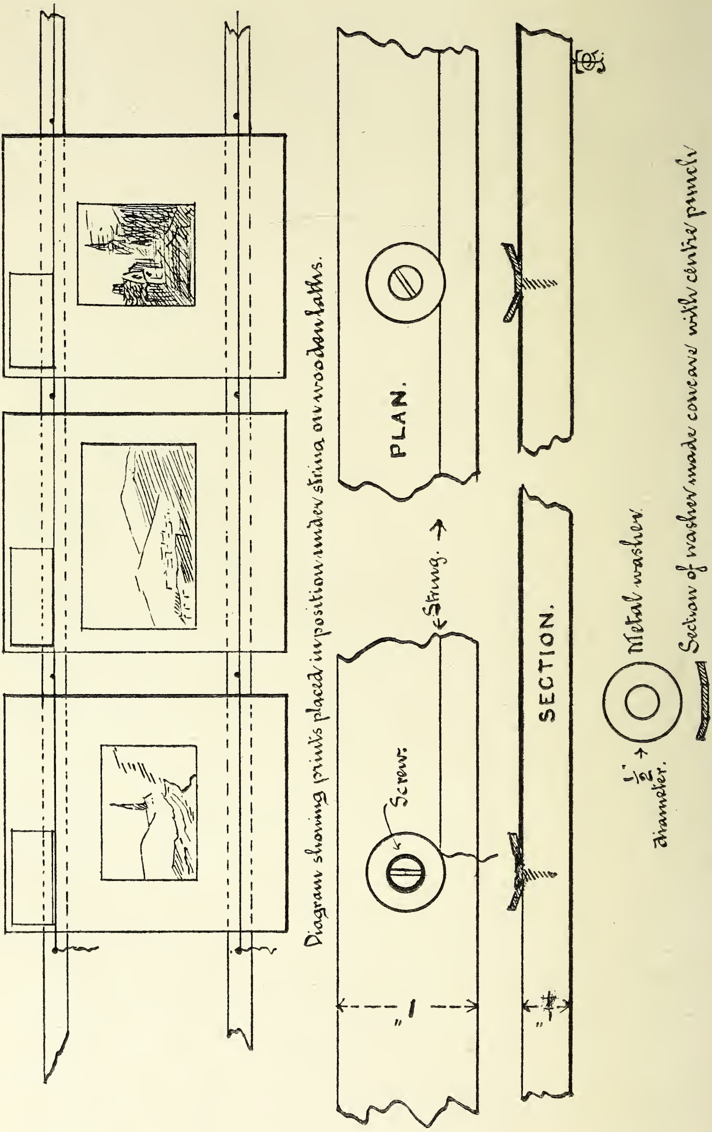


Diagram showing prints placed in position under string on wooden laths.
Screw.
← String. →
PLAN.
SECTION.
1"
¼"
½" diameter.
Metal washer.
Section of washer made concave with centre punch.

FIG. 38.—Method of displaying prints by means of battens.

A device successfully used some years ago in displaying some 200 record prints for several weeks in a gallery of the Crystal Palace may be worth noting. It is illustrated with dimensions in Fig. 39, and can, of course, be made of any convenient length.

Where a wall or other vertical surface is available into which tacks or drawing pins may be driven, prints mounted on paper can be conveniently and inexpensively shown by framing them with strips of brown paper overlapping the edges, with the effect shown in Fig. 40.

This method of display leaves exposed only the print and title slip, with a portion of the mount; the intervening strips of neutral tinted paper isolate the prints in a fairly effective manner, and all risk of fraying or creasing the edges and corners of mounts is obviated.

MEETINGS.

The Annual Meetings of the Society should be looked upon as an opportunity for giving publicity to its work. To this end it is well to arrange that successive Annual Meetings shall be held in different parts of the district. Frequently the Local Authority will grant, for such a purpose, the use of a suitable apartment in a public building, and often the Mayor of a Borough or some prominent local citizen will agree to attend and preside (if not also provide suitable light refreshment), and his presence, if well announced beforehand, will attract an audience.

An exhibition of prints should precede and follow the Annual Meeting; if not in the same building, then in some place of public resort, *e.g.* the Public Library

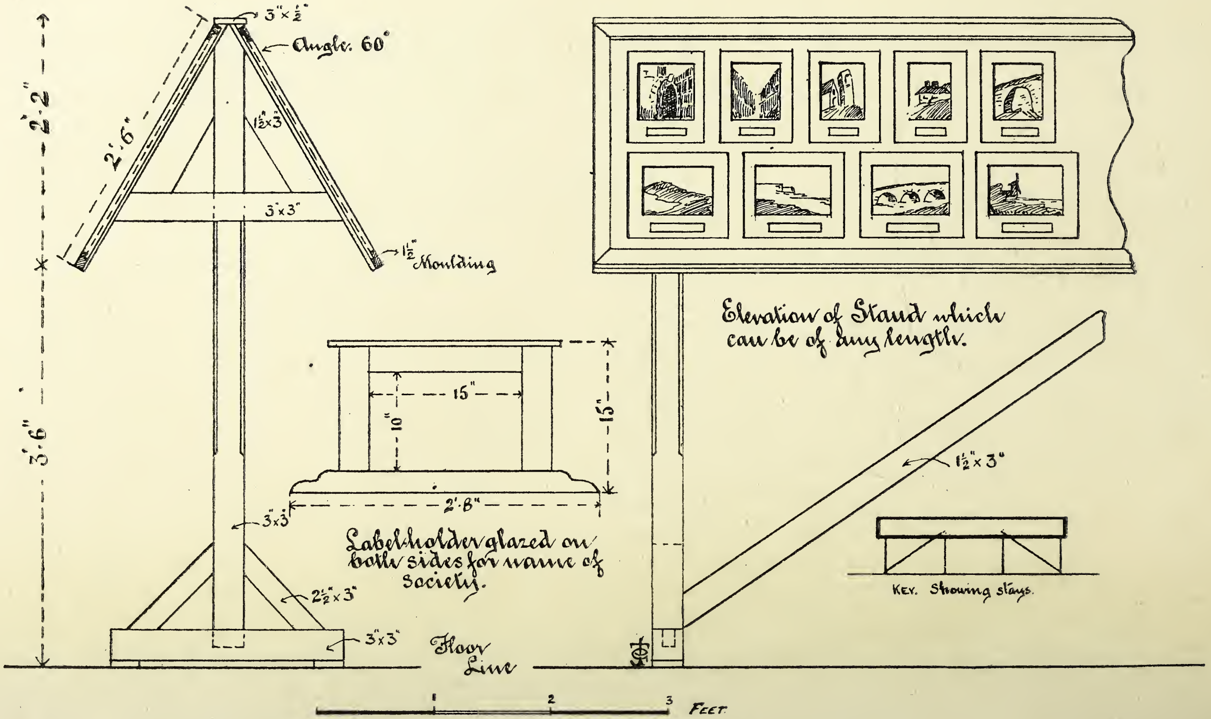
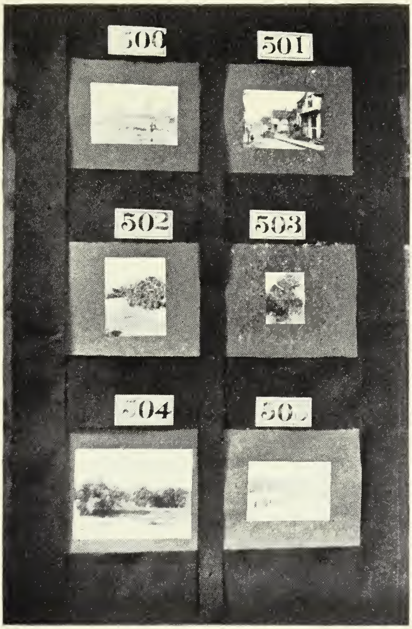


FIG. 39.—Method of displaying prints on sloping stands.



[*Facing p.* 158.

FIG. 40.—Method of framing prints for display by the use of strips of brown paper.

or Museum. The meeting should be made known beforehand by placards in prominent positions, and invitations to attend should be sent to a number of leading residents and to members of local societies. A lantern lecture may with advantage be given on the day of the meeting, and the Press should be invited to send representatives; members of the Council should see to it that these gentlemen are well supplied with information as to the nature and work of the Society.

Excursions.

Excursions may often be made a valuable agency for securing records of localities poorly represented in the collection. They serve also as a means of bringing the working members of the Society into friendly relationship with each other, and of keeping alive the interest of members during the summer season, when lectures or meetings are naturally somewhat in abeyance. Frequently also arrangements can be made to visit a town or district where exist Photographic or Scientific Societies which either are, or it is desired should be, affiliated to the Society; in such cases the excursion may with advantage be organized as a joint one.

It should be possible for any active Survey Society to organize successfully one whole day and two or more half-day excursions each summer, and these will not only serve as pleasant reunions, and arouse and maintain interest in the work, but will result, if properly managed, in the acquisition of a goodly number of photographs. It will be obvious that care should be taken in organizing excursions into any district to act in consultation with the officials of local Photographic or Natural History Societies.

A few suggestions, based on several years' experience in the organization of Photographic Survey excursions, are offered for the consideration of those by whom the conduct of such outings is undertaken.

The work should preferably be shared on the day by two or three Officers or Members of Council, though the preliminary work is largely within the province of the "Survey" and "General" Secretaries.

Having decided well beforehand upon the date and locality of the excursion, communications should be opened up with as large a number as possible of persons interested in the district to be visited, and their co-operation should be sought in getting together a list of the objects to which the photographers' energies can be most usefully directed.

This list, when as complete as it can be made, should be compared with the records already in the collection; when, by this means, the subjects specially needing attention have been enumerated, one or more cards or slips of paper should be prepared for each, noting the features which should be most clearly brought out and giving any technical information (point of view, lighting, best time of day, etc.) that may be useful. This preliminary work may seem to savour of needless elaboration. It should be remembered, however, that mere aimless wandering about and casual snap-shotting is not only poorly productive in itself, but tends to beget a slipshod attitude towards the work which it should be the aim of Survey organizers to combat, and is moreover less productive of enjoyment to the participants in the excursion than is work intelligently directed to an end of real value.

A preliminary visit should be paid to the district selected, and arrangements made with a respectable but inexpensive hotel or tea-room to provide a substantial tea. It will be found best to leave the members free to make their own arrangements for midday refreshment, and to let the whole party join for a final meal when the day's active work has been, at all events chiefly, accomplished. To ascertain the probable number for whom provision will be required, a preliminary notice of the excursion may be sent, accompanied by an addressed postcard for reply as to whether the recipient intends joining, but the arrangements made should provide for a liberal margin in both directions.

The co-operation of residents and Societies in the area should be sought, and efforts made to induce Secretaries of Societies to interest their members.

A week or so before the date fixed, a circular should be sent to every intending participant, giving full details of trains, outward and homeward, place, time, and price of tea, etc., and appointing a meeting-place and hour at the time of arrival, so that visitors from a distance and local residents may join before a start is made upon the work of the day.

Permission will, of course, have been sought beforehand to visit buildings or places of special interest.

When the party has gathered at the arranged meeting-place, it should be divided into groups, each of which will be placed under the charge of one of the leaders of the excursion ; this official will not himself take photographs, but will tactfully allocate the work to be done among the available photographers and supervise its accomplishment, keeping a note of the cards issued to each against a list, which he will retain. This will fix on each photographer the responsibility for the eventual contribution of prints of the subject assigned to him, and while it is not to be expected that a record of every desired subject will be secured, it will be found in the end that far greater results will accrue from a day's outing thus organized, than if each member of the party had devoted his camera to such subjects as struck his fancy. Moreover, the day will prove to be much pleasanter to each, if he be made to feel that some definite responsibility rests upon him for a share in the success of the outing.

It need hardly be added that the Survey Secretary, to whom the lists of subjects allocated to participants will be handed after the excursion, will, when a suitable time has elapsed, look up those who have not sent in the records they undertook to secure.

His efforts will be made more fruitful if, when the party is gathered at the afternoon meal, a post-card is handed to each photographer of the party, on which he or she is asked to enter a brief list of the exposures made. These should be collected before the close of the meal, and will furnish the lists from which the Survey Secretary will work in sending out his reminders.

CHAPTER IX

APPARATUS

Assuming that an interest in Survey work has been aroused sufficient to induce a wish to undertake the production of photographs for record purposes, there follows the question of providing the necessary outfit. Few pursuits involve, as an irreducible minimum of cost, so small a sum as does photography. Nor is this economy necessarily purchased at the expense of quality of results, for under many conditions a camera costing five shillings will produce as good a record as one costing six times as many pounds. The *necessity* for expensive apparatus only becomes felt when work has to be carried out under special conditions of lighting or position. It may be convenient to commence with what the writers would consider an ideal outfit, indicating under each heading the characteristics which, it is believed, will be found most useful, and then see what practical approximations are within the reach of those whose means impose limitations more or less rigid on their photographic expenditure. Firstly, then, as Oliver Wendell Holmes says in describing a man of family : "Let us give him a first-rate outfit ; it will cost us nothing."

Cameras.

(1) A whole-plate or half-plate field camera, solidly made so as to be rigid when fully extended, with turntable in base, triple extension bellows (say 24 inches

for the half-plate size), large bellows (to avoid cutting off of image), rising and falling front, swing front and back, rackwork movements to front and back extension, and to forward movement of back for wide angle work. It will be found convenient that the lugs to which the tripod legs are affixed project below the turntable, so that the latter can be actuated when the camera is clamped on to a plane surface (*e.g.* the "tilting table" described later). The "Royal Ruby" Camera of the Thornton-Pickard Company (costing about £10 10*s.* in the half-plate size for the camera, behind lens shutter, and three book-form double dark slides) may be taken as typical. It is, however, possible to obtain a quite serviceable half-plate camera set (including a fairly good "rapid rectilinear" lens, behind lens shutter, three slides, tripod, and case) for about £3 10*s.*

(2) A quarter-plate or $3\frac{1}{2}'' \times 2\frac{1}{2}''$ reflex camera, with double extension (say 11″ in quarter-plate size), focal plane shutter with a "slow" speed (preferably not faster than $\frac{1}{5}$th second), and revolving or reversing back. This will cost, for the camera and three double slides, anything from £10 10*s.* to £30.

No reference is here made to the various roll film cameras obtainable. Full particulars of these are given in makers' and dealers' catalogues. The cost of roll film negatives is about three times that of the corresponding sizes in glass, the negatives have less general use, and the work has its own features of difficulty for which the results offer, to the "Survey" worker, no sufficient compensating advantages. Nor has reference been made to the various types of "box form" cameras, for the reason that, convenient as these are to the beginner or the mere "snap shotter," their limitations will soon become painfully obvious to those who take up survey work with any seriousness.

LENSES.

For the Whole or Half-plate Camera: a convertible 3 foci anastigmat, working at about F 6.3, with a telephoto attachment; and a "wide angle" lens covering not less than 90°, also a pinhole attachment for use at focal lengths beyond the range of the foregoing lenses.

An illustration of the value of a pinhole in difficult situations is furnished by Fig. 41, a photograph which no ordinary lens could have taken, owing to the surroundings making it impossible to get far enough away from the subject to get the whole of it upon the plate. A pinhole attachment can be purchased for a few shillings, or can be made by the method described in Chapter XIII. A useful attachment, enabling smaller plates to be used, is illustrated and described in Chapter XI.

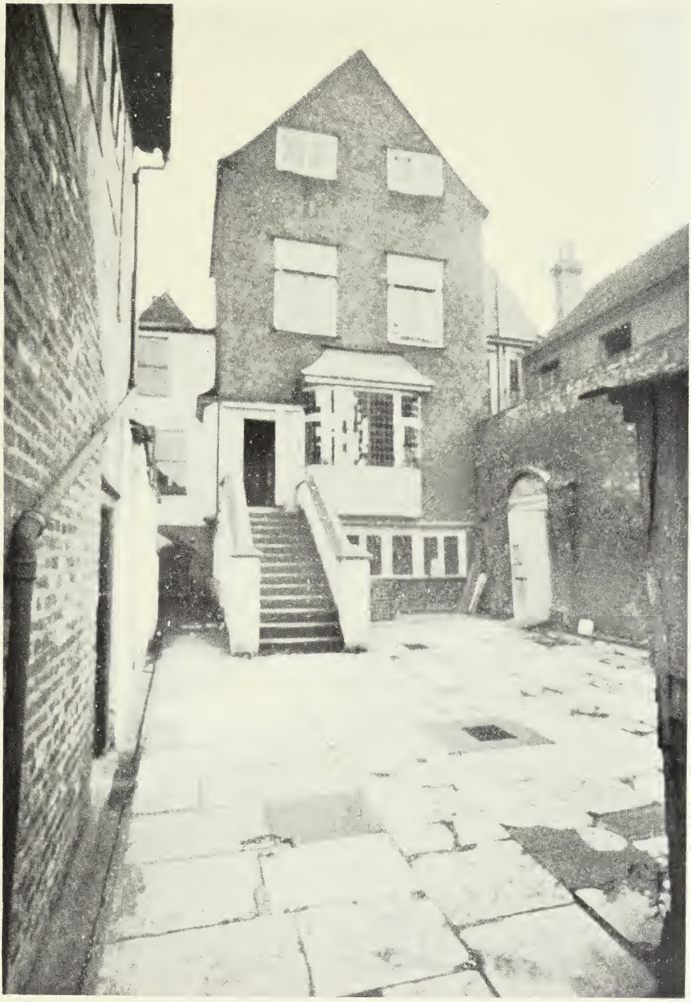
For the Reflex Camera: an anastigmat working at F 4.5 to F 6, and a self-contained telephoto lens, with variable magnification, such as Dallmeyer's "Adon" or "Junior Adon."

The working range of lenses can be much increased by using, in conjunction with these, positive or negative "spectacle" lenses of moderate focal power. Formulæ for the combined use of lenses will be found in Chapter XIII. It is true that certain optical errors are thus introduced into the lens system, but if the supplementary lens, whether positive or negative, be of a focal length at least twice that of the camera lens, these errors are not in most cases of serious practical effect.

If the worker wishes to commence with a single camera and lens at a small cost, probably one of the folding "hand-and-stand" variety of quarter-plate or 5 × 4 size will be found most useful. It is desirable that the lens be a convertible anastigmat, with a focal length in its combined form of about 5 inches. The camera should be capable of extension to not less than 11″, and be actuated by rack and pinion. Such a camera, preferably with a convertible lens working at about F 7.7, can be obtained new for about £3, while from the reputable dealers in second-hand photographic apparatus the outfit could be probably obtained for little over half that amount.

Accessories.

Plate-changing Arrangement.—It will be found a great convenience, at all events so far as quarter-plate or 3½″ × 2½″ work is concerned, to be provided with an arrangement obviating the necessity for carrying separate single or double dark slides for the plates required for a day's work. There are many excellent plate-changing boxes on the market, each carrying usually twelve plates; their drawback is that they are usually expensive, and that their working capacity is limited to the number of plates they are designed to hold. More generally convenient will be found the envelope plate-changing attachment, costing (in quarter-plate size, with hooded focussing screen) about 15*s*. Mention may be made of a very ingenious daylight changing device, sold under the name of "A-kla," whereby plates are carried in pairs in light-tight metal



[*Facing p.* 166.

FIG. 41.—Pinhole photograph, taken in a shallow courtyard.

frames, and can be loaded in daylight into two single dark slides. This has also an arrangement whereby development can be, if desired, effected (by the "time" or "tank" system), and the plates can be subsequently fixed, without the need of a dark room. It costs 15*s.* for the quarter-plate size, or 20*s.* with the daylight developing and fixing attachment, and can be fitted to any ordinary type of stand or hand camera.

Mention may be made of the "film-pack," which takes up no more space than a double dark slide and carries 12 cut films. These films are treated in development like glass plates, and are free from many of the difficulties attendant on the use of roll films. The cost per exposure is however about double that with glass plates.

Focussing Cloth.—This should be ample in size. The size sold for whole-plate will not be found too large for convenient working with quarter-plate. It is a convenience to have a small leaden disc sewn into each corner with a button and loop or a safety-pin. If the cloth be waterproof it will serve as a protection when carrying the camera, set up for action, in the rain.

Tripod.—This should be sufficiently substantial to ensure rigidity when set up. The tubular metal tripods are light and compact, but are liable to be thrown entirely out of action by any slight injury, and are not as a rule so rigid as a good three-fold wooden tripod. They cannot, of course, be used with turn-table stand cameras. The length of the tripod should be such that the camera can be erected at a height enabling the worker to look squarely at the image on the focussing screen without having to assume an uncomfortably strained stooping position.

Some simple devices for steadying the tripod and preventing the lens from slipping are given in Chapter XIII.

View Meter.—This is a most useful appliance designed to enable the amount of subject which, with a given lens, can be depicted on the plate, to be ascertained without setting up the camera. In its simplest and most efficient form it consists of a rectangular frame (with opening proportioned to that of the plate in use), to which is attached a cord or tape marked with the focal length of the lens used. If this mark be placed against the cheek-bone just under one eye, and the frame directed towards the object to be photographed, the amount of view included will be seen within the frame. Such a view meter, available for any number of lenses and plate sizes, can be constructed at a cost of *2d.* by procuring a penny child's toy drawing-frame with an opening of 4″ × 3″, and to the middle of the longer side attaching a penny tape measure. If the negative be whole-plate size it will be obvious that the distance of the frame from the eye must be half the focal length of the lens used, and the proportion for other sizes of plate is ascertained by a simple calculation. The saving in time by the use of this simple apparatus for ascertaining the best practicable view-point is very great.

Tilting Head.—This consists usually of a "ball and socket" joint with clamping screw, and will, if solidly made, be found an enormous convenience, as with it the tripod can be set up in any convenient position, and the levelling and pointing adjustments made without the necessity of fidgetting the legs to and fro, a movement which often results in one leg being found to rest on an unsuitable or slippery support. A still more convenient accessory is a "tilting table," which enables the camera to be pointed in any direction from the vertical (upwards or downwards) to the horizontal. For securing architectural detail or small natural history subjects and for copying the movement is of great value. This can easily be made at home and its construction will be apparent from Fig. 42.

It is further described in Chapter XIII.

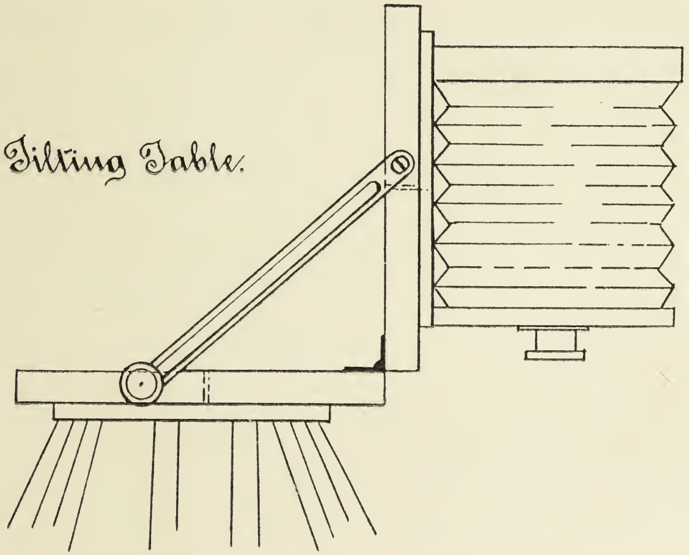


FIG. 42.

The following minor accessories will be found of value, and should form part of the working outfit of any photographer who aspires to serious and all-round survey work.

Compass.—If a compass be not available it may be useful to remember that (when the direction of the sun can be seen), a watch can be used to get a fairly close approximation to the compass points. As the hour hand makes two revolutions in the twenty-four hours, it travels twice as fast as the apparent revolution of the sun, and if the hour hand be pointed towards the sun at noon a line drawn from twelve to six across the watch dial will point north; so if the hour hand be pointed towards the sun in the forenoon the point on the dial halfway towards the figure XII *forwards,* and in the afternoon halfway *backwards* will indicate the south.

Skyshade or Hood for Lens.—It is not often realized to what an extent a negative may be dimmed by reflected light from the inside of lens and camera. The modern anastigmat lenses are particularly subject to this, their mounts projecting little, if at all, beyond the surface of the front lens. An extensible square hood with lazy-tong struts will probably be found the most useful preventative of this trouble. It is a matter for wonder that so few makers of cameras fitted with expensive lenses pay any attention to this requirement; but it may safely be asserted that in the near future no high-class camera will be deemed complete without an efficient lens hood as part of its construction. Home-made lens hoods are dealt with in Chapter XIII.

Focussing Magnifier for Critical Focussing.—The use of this necessitates a more translucent screen than is requisite for visual focussing, and many workers cement a small disc of clear glass (usually a microscopic cover glass) to the centre of the focussing screen with Canada balsam; if, however, the ground glass be wiped over with vaseline, and then well rubbed off, sufficient translucency will be obtained for the use of the magnifier, while the glass will be still granular enough for visual focussing; an ordinary plate slightly fogged, developed up and then bleached with mercury, forms an excellent fine-grained focussing screen.

Scales to indicate Size of Objects photographed.—The inclusion of a scale is one of the respects in which a photograph taken for record purposes will differ from one taken merely with a view to pictorial effect. Unless the negative include some object of known size in or near to the plane of the subject, little or no idea is given of its magnitude, and most misleading results are sometimes so obtained. For architectural or geological subjects the most useful scale is a bold white or black measure of about a yard in length, clearly marked in feet. Such a scale is supplied, marked to a yard and a metre, by the Society of Antiquaries, price 6*d.*, post free. A walking-stick, umbrella, or adult figure of average height, is better than nothing. Useful scales for smaller objects are dealt with in Chapter XI. The Surrey Survey supplies to its members and workers cards 4″ × 3″ as shown in Fig. 43. It will be noted that there is a space on which particulars of the subject can be written if it be desired that these appear in the photograph.

Exposure Meter.—This is practically a necessity for work under certain conditions (*e.g.* interiors, subjects with strong light and shade contrasts, etc.). A serviceable meter is supplied by the Imperial Dry Plate Co., Ltd., for 1*s.* A useful pocket meter is that made by Watkins at half-a-crown. For many subjects the exposure can however be gauged with sufficient accuracy from tables. Burroughs, Wellcome & Co publish a very handy "Exposure Note Book" at 1s. containing such tables.

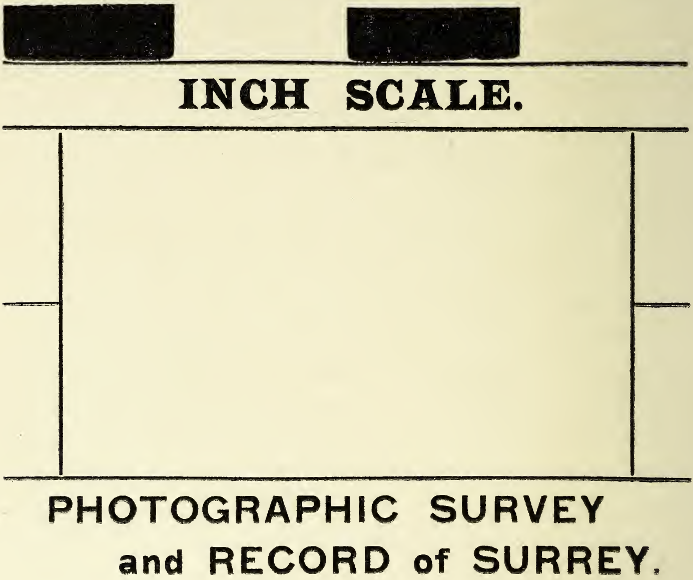


Fig. 43.

Exposure Note Book.—This can be purchased, but the survey worker will probably find it more convenient to prepare his own, with columns for the special information desired. The following headings, or some of them, will be found convenient.

1. Date of exposure.
2. Time of day.
3. Camera.
4. Lens.
5. Plate.
6. Stop.

7. Nature of light (*e.g.* "Sunshine," "Light clouds," "Gloomy," etc.), *or* Exposure Meter reading.

8. Exposure.

9. Direction in which camera is pointing (*e.g.* N.W.).

10. Subject.

11. Date of development.

12. Developer used.

13. Character of resulting negative.

14. Reference number of filed negative.

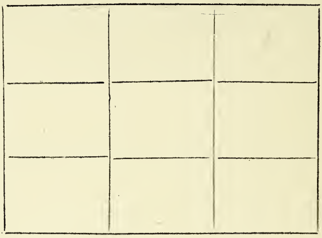
15. Date printed.

16. Process, exposure, and developer used (if printed by a development process).

17. Notes on printing result.

Level.—The camera is sometimes provided with a level or levels, but if it be not, the photographer should have some means of ascertaining whether the focussing screen is vertical and the camera top horizontal. Failure in the former respect will result in lack of parallelism of upright lines, *e.g.* the sides of a tower, and failure in the latter will result in an apparent tilting of the subject. Should these defects occur on a negative, the first can be in some measure remedied by printing on bromide paper through an enlarging lantern, tilting the negative or the papers until the distortion is cured, and the latter can be obviated by trimming the print, though this results in a loss of part of the subject. Both faults, however, illustrate the old adage that prevention is better than cure.

A rough but practical "plumb indicator" can be improvised by attaching a weight (*e.g.* a bunch of keys) to a thin string, and letting it hang close against the side of the camera back, by which means any but a very slight deviation from verticality in either direction can be detected. One or two vertical and horizontal lines on the focussing screen will be found useful in testing the correctness of vertical or horizontal lines in the image. They should preferably divide the plate into three portions in each direction, thus—



Dark Room.

Here the worker's arrangements must be governed entirely by the resources open to him in regard to the appropriation of a suitable apartment to his photographic work. If a room, say 12′×10′ with a fireplace and window, on the ground floor, and near to the water and drain pipes, be available wholly for his work, the ideal conditions may be said to exist. In Fig. 44 is indicated how such a room may be adapted to form a luxurious and fully-equipped dark room. The details may be easily modified to suit individual cases. It will be noticed that the door is shown, but this may either be removed or disregarded as a means of securing darkness, reliance being placed on two divisions, one **L**-shaped and one straight; if these are coated inside with a dead black (for instance, covered with rough brown paper with a coat of lampblack worked up with size), no light will enter, although there is an open passage both for the worker and for that free interchange of air which is most desirable in a dark

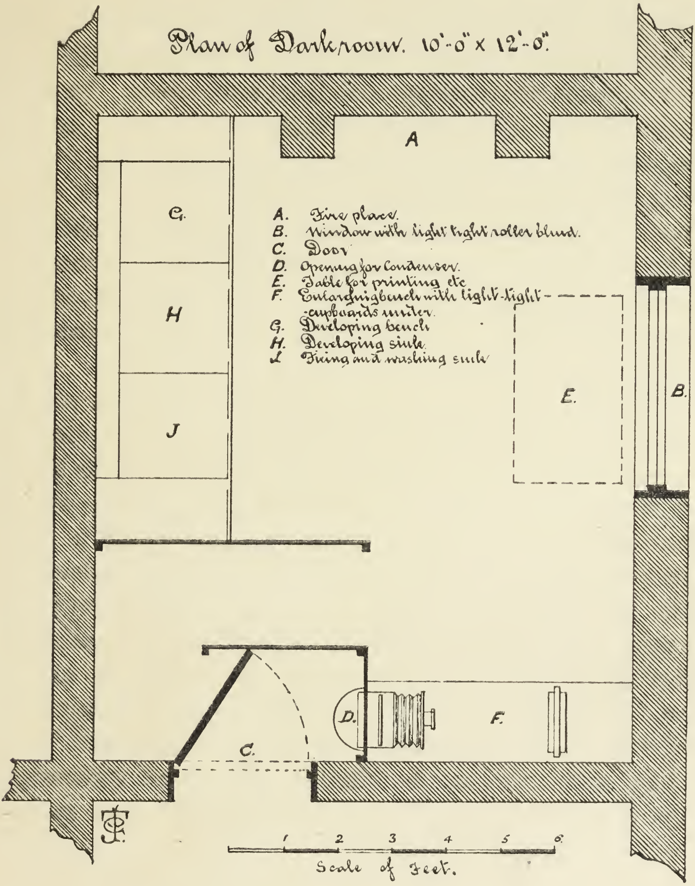

Plan of Darkroom. 10'-0" x 12'-0".
A
A. Fire place.
B. Window with light tight roller blind.
C. Door
D. Opening for Condenser.
E. Table for printing etc
F. Enlarging bench with light-tight -cupboards under.
G. Developing bench
H. Developing sink
J. Fixing and washing sink
G.
H
J
E.
B.
D.
F.
C.
1 2 3 4 5 6
Scale of Feet.

FIG. 44.

room. The window should be so fitted with shutters or double roller blinds that (when the room is not required to be dark,) it can be freely opened. Plenty of daylight when work is not going on is an essential condition of cleanliness and healthiness—both requisites for good work. It is not recommended that filtered daylight be used for working by—it is too variable, and a moderate but constant safe light is the best. In most cases electric light, where available, will be found, on the whole, the most convenient illuminant; but gas, especially if so arranged that the products of combustion are taken by a flue into the chimney, and thus aid ventilation, has many advantages. Provision should be made for red and orange light over the developing sink, and for orange light in the centre of the room.

It will often, however, be the case that the photographer must resort to a makeshift; and probably where consent can be got from the autocrat of the house it will be found that the temporary adaptation of the bath room, by darkening the window with a light removable framework, is alike the least expensive and the most efficient plan. If a framework of laths be made to fit over part of the bath, a quite serviceable developing bench is obtained. An excellent article on "fitting up the dark room" appears on page 523 of the "British Journal Photographic Almanac" for 1913, and this may be studied with much advantage by those desiring to make the most of such means as may be at their disposal.

CHAPTER X

WORK IN THE FIELD

EFFECTIVE work in the field depends—as does all satisfactory photographic work for that matter—upon thoroughness and careful attention to details and data. The practice of exposing promiscuously upon any object which happens to attract attention is of far less value than that of selecting such subjects only as are of importance (from a record not an æsthetic point of view), and such aspects as will give the best general idea of the object as a whole, following with subsidiary details, so far as opportunity permits. A methodical "laying out" of the work beforehand, regard being paid to the number of plates available, will produce the best "record" results.

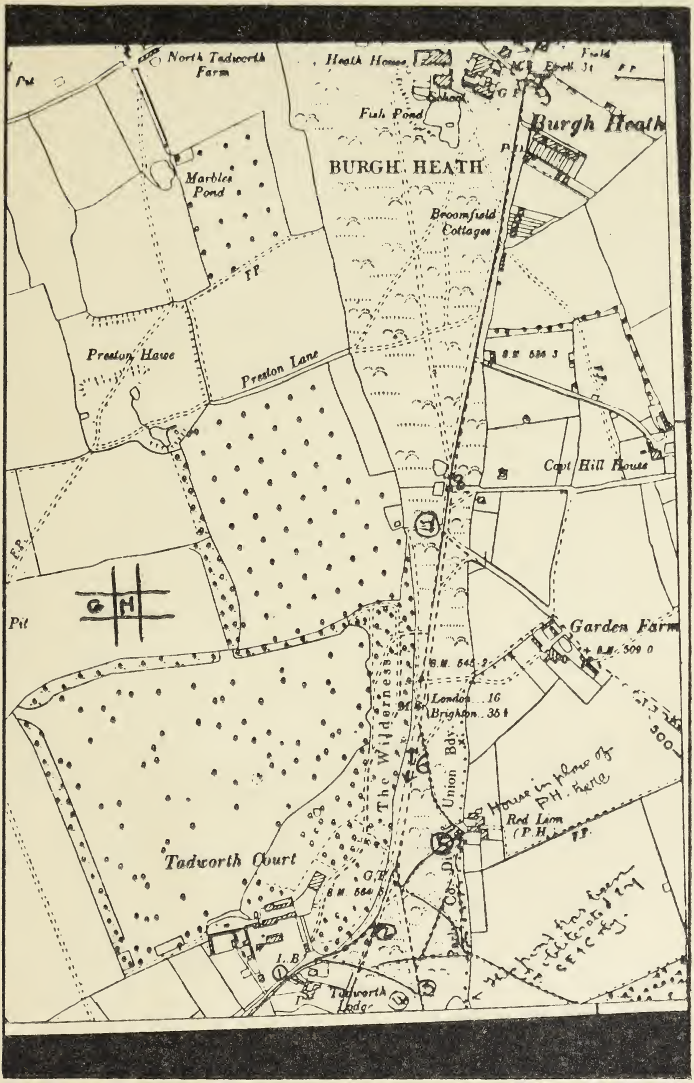
Probably the best basis for systematic record field work is the six-inch Ordnance map: it will be found to suffice for all practical purposes, giving most of the buildings, fields, trees, etc., in sufficient detail to work from in making lists and notes of photographs to be taken.

The sheets can be purchased through any bookseller at one shilling each, covering an area of six square miles, and can be cut into sections of convenient size for carrying in the pocket or camera case. "Parish Maps" can usually be obtained on a scale of twenty-five inches to the mile, and "Town plans" on the still larger "sixty-inch" scale, while privately published maps, based as a rule on the Ordnance Survey, are often obtainable locally. But the uniformity obtained by basing all work on the six-inch Ordnance makes its general adoption advisable.

It will be found a convenience to carry two sheets of stout celluloid slightly larger than the sections, between which they can be sandwiched, the two sections in use facing back and front and the whole being secured with rubber bands. If the celluloid be marked in inch squares the scale can be seen at a glance.

Thoroughness of work is best attained by first walking over the ground unencumbered by photographic impedimenta and noting on the map the views to be taken, supplementing this information by detailed note-book memoranda. This done, the photographic outing is directed without loss of time to actual work, and the result will be found a better series of records than could be obtained by casual, unpremeditated, and therefore more or less promiscuous, exposure of plates. Notes as to lighting, the best direction of camera, and the like, can be made with advantage beforehand, and often necessary permits obtained in advance. A study of the guide-book and other literature of the locality prior to the day of actual work will often save one from overlooking matters of special interest.

As an illustration of how such preliminary notes as are suggested above may be made, we reproduce a section map, Fig. 45, between Epsom and Tadworth as marked by two of the authors with the notes for work to be done, taken at the time of the preliminary visit.



Reproduced from the Ordnance Survey Map with the sanction of the Controller of H.M. Stationery Office.

FIG. 45.—Field notes on map.

Extract from notes taken April, 1908, *in a preliminary walk over the ground.* It was assumed that the photographer would be equipped with a ½-plate camera (and ¼-plates in carrier) and lenses of 6″, 8″ and 12″ focal length.

1. Entrance Gate of Tadworth Court and Porter's Lodge.→N.
   6″ Lens on ½-plate horizontal. Take from railings opposite.
   (Write for permission to photograph building, etc., to C. J. Morton, Esq., Tadworth Court.)
2. View over heath, with clump of trees and spire of Kingswood Church. → 1 point E. of S.
   Take from middle of E. road of triangle outside Tadworth Court Gates.
   8″ lens on ½-plate, horizontal.

2*a*. View S. along main road from opposite side of road to last view point. Old Windmill on left of road.
   8″ lens on ½-plate, horizontal.

3. View → N.E. from junction of road and rail (latter not shown in map), across N. corner of old pond now drained by S.E. and C. Ry. Cutting.
   8″ lens on ½ plate, horizontal.
4. Front of Tadworth Court with gorse in foreground. → N.W.
   12″ lens on ½-plate. Note: take before trees are in leaf.
5. Old square iron post, numbered 136 (? Coal and Wine dues) by site of old "Red Lion" P. House, shown on map but no longer there: A modern residence in its place.
   ¼-plate will do.
6. View → N.E. along road (Tadworth Court, fence and trees on left).

6*a*. Similar view → S.W.

7. View → S.E. down lane from junction with main road.
8. Main road → N.E. with Burgh Heath Village on horizon.

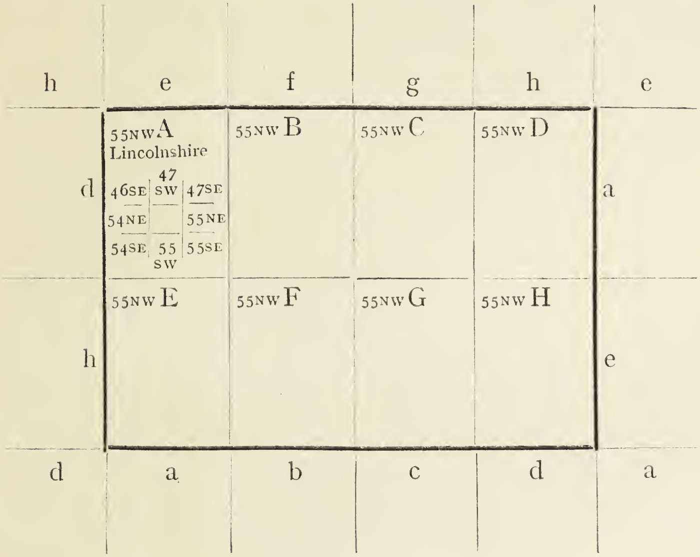
8*a*. View from same point → S.

8*b*. Pond W. of road.

9. Corner of Common and sign of "Surrey Yeoman" P. House.
   6″ lens on ½-plate, horizontal.

9*a*. View along road → N.E. "Surrey Yeoman" P. House. Quaint room to left of bar with fireplace: also old game of "shovel-board." Write landlord for permission.

The handiest method of carrying maps in the field is to cut them up into sections which will go conveniently into the pocket. Both the one-inch and six-inch Ordnance maps will divide up neatly into eight such sections. Each section should be marked (on the back) with the number of the sheet and the letter indicating the section, A—G. The back of the first section, A, should also have the numbers of the surrounding sheets indicated (see Fig. 46). It is then quite easy to run on from one section to another, whether of the same sheet or not. In cutting up the map all the border should be cut off first, so that



The 6-inch quarter-sheet of the Ordnance Survey divided into sections for the pocket. The lettering is entered on the *back* of each section. The sections of surrounding sheets are indicated by lower-case letters.

FIG. 46.

nothing but the actual map contents are carried. A xylonite pocket to take the sheets and protect them from wet as well as handling is a great convenience; unfortunately none of the map-makers appear to make pockets of the right size; cloth, however, can be stuck to xylonite by means of seccotine, so that it is not a very difficult matter to make this map holder. It will be well to scratch on the xylonite squares and circles an inch apart, to give a rough indication of scale.

With every photograph taken for record purposes there should be noted, in addition to the technical photographic data kept by every systematic photographer (date, time of day, character of light, lens aperture, kind of plate or film, length of exposure, etc.), the "compass point" or direction in which the lens of the camera was pointing. It will be found well also to include in the view wherever possible some object which will indicate size as accurately as possible and thus serve as a scale. The lack of this will often cause a series of photographs to give a ludicrously mistaken idea of the relative sizes of the objects depicted.

A scale that will be found useful for many purposes can be obtained for 6*d*. from the Society of Antiquaries, Burlington House. It is made of stout paper, 1 metre in length by about 2½ inches broad, boldly marked in feet and metric measure; pasted on a lath, sized and varnished, and hinged to fold in two, it will pack with the tripod, and is of use to lay against objects of large size. Care should be taken that it be placed in the same plane as the principal subject of the photograph, to avoid errors of perspective.

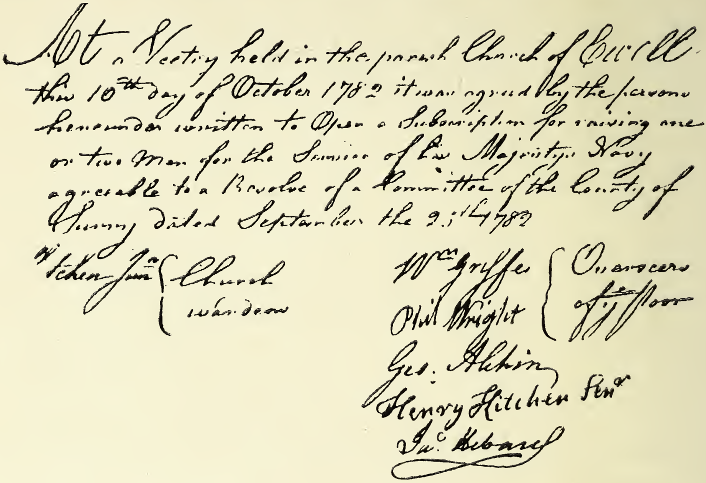
In the case of photographs taken partly as records and partly for pictorial purposes, there may be an objection to so conspicuous a scale ; in these instances, the inclusion of a figure is useful as an approximate guide to size.

A foot rule, a stick or umbrella and the like may, for lack of a better scale, be often pressed into service. It may be usefully noted that in modern brickwork, four vertical courses represent one foot in height.

Turning now to the subjects that will most often come within the range of the outdoor record worker's camera, the following points may, with advantage, be borne in mind.

Buildings.—These, if taken for record purposes, will probably be of such character that their details should not be missed, and interesting specimens of any of the following minor but often valuable objects should be looked for : chimney-pots, ventilators, leadwork, cast and wrought iron work, pipe-heads, railing standards, gullies, vanes, hinge straps, knockers, locks, keys, padlocks, door handles, bar handles, window latches, dog grates. Attention should also be paid to the furnishing, wood-work, staircases, panelling, barge-boards and roofing. In ecclesiastical buildings may be found windows with their tracery and stained glass, tombs, brasses, mural tablets and inscriptions, frescoes, pillars with their capitals, corbels, fonts, piscinas, screens, lecterns, pulpits, bells, groining and vaulting, muniment chests, plate, almsboxes, old deeds and records. For an illustration of the last see Fig. 47. On the exteriors of ecclesiastical buildings, one should look particularly for gargoyles, finials, porch details, window ornamentation, buttresses, and any indications of older masonry incorporated in the structure.

As a rule, better records of brasses are obtained by taking rubbings and photographing these than by attempting to photograph the brasses direct. An illustration is given in Fig. 48 of a rubbing of one of the celebrated Stoke d'Abernon brasses. This rubbing was photographed for record purposes, and it will be seen that the details are more clearly brought out than they could probably be in a direct photograph.



At a Vestry held in the parish Church of Ewell
this 10th day of October 1782 it was agreed by the persons
hereunder written to Open a Subscription for raising one
or two Men for the Service of his Majestys Navy
agreeable to a Resolve of a Committee of the County of
Surrey dated September the 21th 1782

Hitchen Junr } Church warden

Wm Gryffe } Overseers of ye poor
Phil Wright
Geo: Atkin
Henry Hitchen Senr
Jno Hebard

FIG. 47.

Photography in colours is dealt with in Chapter XII.

Scenery.—The pictorial aspect of this branch of photography will naturally tempt the worker to stray from the paths of record pure and simple. A photograph of a beautiful scene, simply as such, has its value in a record collection, but for systematic work æsthetic gratification should not be allowed to overshadow other considerations.

The best records of scenery are those an examination of which will give an accurate general idea of the

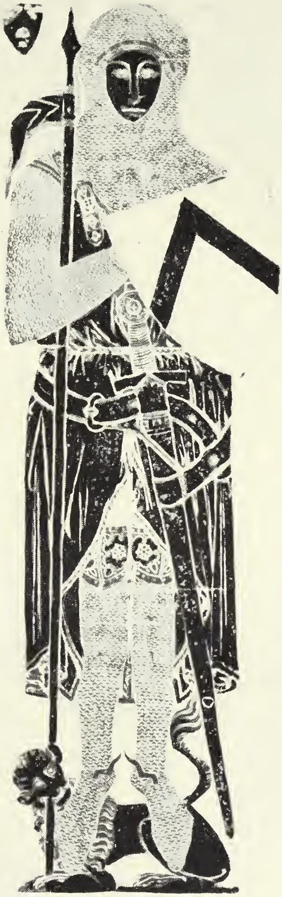


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FIG. 48.—Photograph from a rubbing of brass at Stoke d'Abernon, Surrey.

country at the time the photographs are taken. To secure this end, view points should be so chosen that the series of photographs misses nothing in the landscape and brings each picture into intelligible relationship with the others.

In most cases, this can best be done by taking several vantage points, such as hilltops or towers, and from each taking a series of views with the camera directed successively to each quarter in which an unobstructed view can be obtained, as indicated in Fig. 49.

Frequently the view in one direction will be so obstructed by trees or buildings as to make a photograph unobtainable. In such cases a view-point should be sought, as near as may be to the first, from which a view, looking towards the missing compass point, may be secured.

Four views with a lens covering a field of 90°, 6 of 60°, or 8 of 45° will show all that is to be seen from any one point.

In Fig. 50 is indicated how the whole surrounding country can be depicted with a lens of medium angle, *i.e.* of focal length not greater than 9″ for whole-plate, 7″ for ½-plate, or 4¾″ for ¼-plate. Views so taken can be mounted side by side to give a panoramic effect. For this purpose, the camera must be kept carefully levelled and turned on its axis between each view: the tripod should not be moved.

A series taken as indicated above will not only have a present interest, but at no distant date will acquire a great historic value, as the face of the country changes; particularly is this the case in growing towns and in the areas immediately surrounding them.

Views along roads and footpaths taken "forward and backward," each view-point being within the field of view of the photograph next in series, will be found to well illustrate the aspect of the country.

In hilly districts, a series of views taken from different points along an imaginary line, the direction of camera being parallel in each, will often, if laid side by side, have a pseudo-panoramic effect and give a good idea of the country generally.

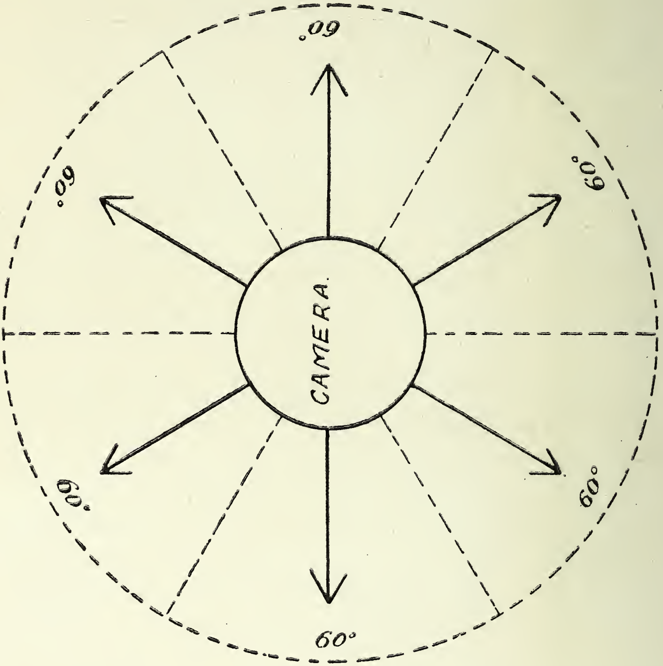

Fig. 49.

Passing Events.—Scenes of everyday life in the streets, processions and public functions, furnish valuable records often interesting in themselves, while the

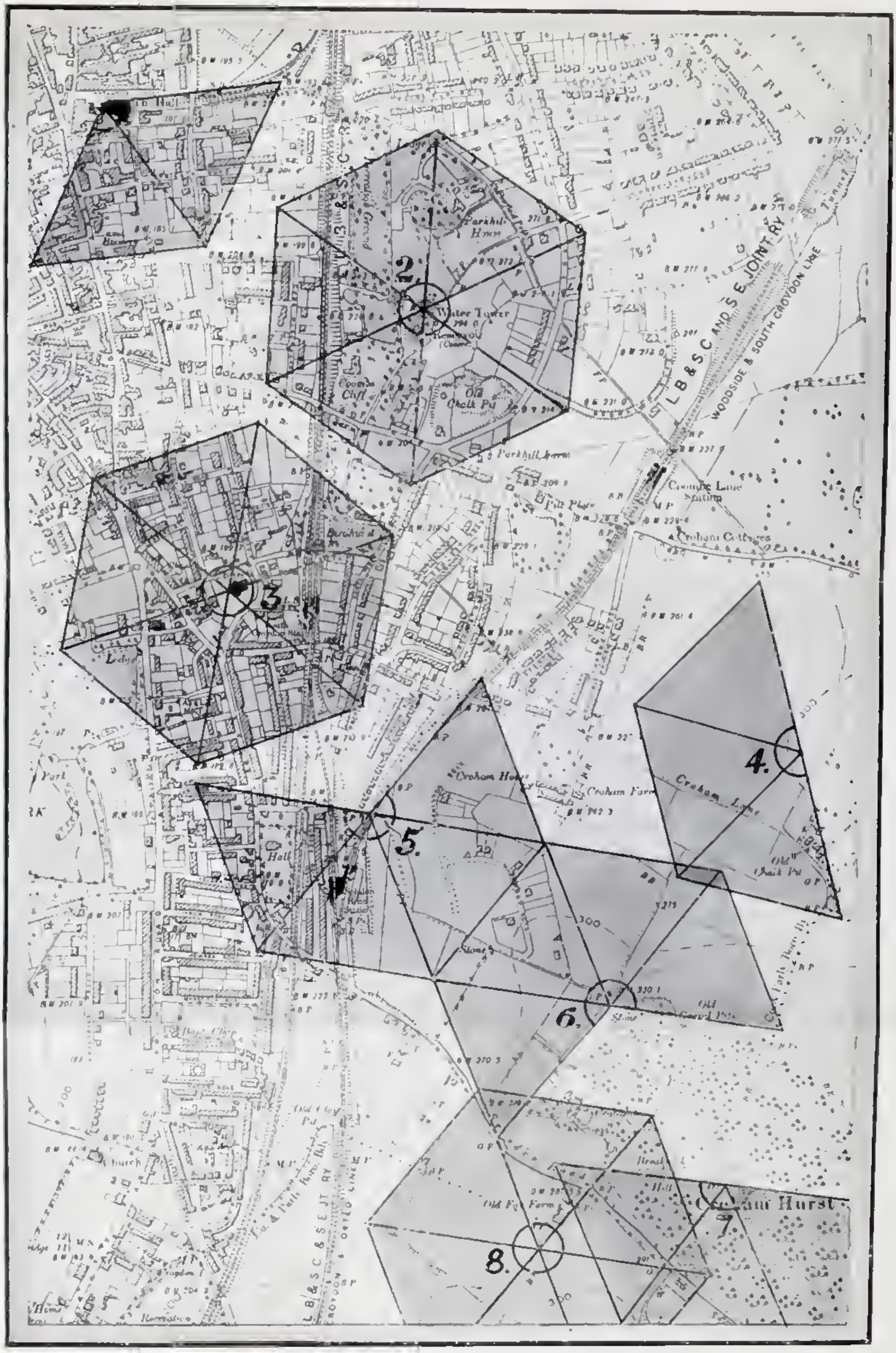

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FIG. 50.—MAP OF CROYDON (REPRODUCED FROM THE ORDNANCE SURVEY MAP, WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE), SHOWING HOW A GENERAL SURVEY COULD BE OBTAINED BY 34 PHOTOGRAPHS TAKEN FROM 8 STRATEGIC POINTS. THE NUMBERED CIRCLES SHOW THE POSITIONS FOR CAMERA AND THE RADIATING TRIANGLES THE DIRECTION OF VIEWS, EACH COMPRISING AN ANGLE OF 60°.

commonplace of to-day is frequently only the memory to-morrow.

Among subjects falling particularly within the province of the amateur worker may be cited fair days, processions, carnivals, civic processions, local events of minor importance, games, sports, cattle shows, horse parades, and street traders, from the shoe-black, crumpet man and gipsy basket-seller to the more pretentious Cheap Jack noisily vending his wares. The coach and four may yet occasionally be seen, but horse traction generally is giving place to the motor, and it may be that aerial locomotion will at no very distant date supersede many forms of travel.

Some uses of animal power die hard. Oxen may still be seen harnessed to the plough in many counties, but mechanical devices steadily tend to oust the older means, and each phase of industry as it passes should be recorded if accurate knowledge is to be preserved of the present which so rapidly becomes the past.

Antiquities and Anthropology.—The subjects which can be classed under this heading are widespread and too numerous to allow of full enumeration here. Ancient burying-places, barrows, cromlechs, objects with traditional associations generally, survivals of ceremonial and other customs will, from time to time, be met with.

Perhaps the most valuable service which a record worker can render in this direction is to ensure, so far as may be possible, that no opportunity be missed of securing photographs *in situ* of the objects frequently exhumed by builders and contractors while excavating : frequently old foundations, caves or skeletons are laid bare and removed or covered in within a few hours. No opportunity should be missed of recording implements, coins, pottery and the like, as these frequently pass into private hands and for practical purposes are scattered and lost.

Heraldic and genealogical carvings, inscriptions, paintings and manuscripts should be photographed whenever possible, also any quaint or characteristic inscriptions on tombstones or buildings. The actual photographing of portable objects can best be done at home, if they can be borrowed, but frequently it is necessary to secure the record where the object is. For such purposes, a tripod which enables the camera to be tilted from a horizontal to a vertical direction will be found invaluable.

Hints under this head are given in the chapter on apparatus. Photographs accurately delineating the physical characteristics of individuals have an anthropologic interest, particularly if accompanied by descriptive notes and measurements. The future value of such records will be great. On this point, the Report of the Anthropometric Committee in the *Transactions* of the British Association for 1908 (also published separately by the Royal Anthropological Institute) may be consulted with advantage.

Geology.—Record work under this heading falls naturally into two main classes.

(1) Photographs showing the general features of the country, its undulating hills and contours, with broad sections, cliffs, etc., and river courses, effects of aerial and subaerial denudation, stratification, jointing, faults and results of erosion.

(2) Individual rocks, small sections and fossils.

Frequently, cuttings or excavations are made and filled in or defaced within a short time. These afford an opportunity for record which, if not taken at once, does not recur.

If the record worker in this direction is not himself possessed of geological knowledge, he will do well to secure the companionship of one who is, that the aspects best delineating the main points of geological interest may be recorded and that adequate notes may be made to accompany the resulting prints.

The rules issued in December, 1904, by the British Association Committee on Geological Photographs may be commended to the attention of workers in this field.

One point should be borne in mind. Sharpness of detail is an essential in all geological photographs, while the inclusion of some scale should not be missed.

Fauna and Flora.—Here will be found ample and limitless scope for the energies of all photographers; and probably in no branch of photographic record will systematic work open up more fields of interest. Specialization, whether in the recording of animal or plant life, will beget studies that will richly repay the time spent. No difficulty need be experienced by any one willing to take up this branch of photographic record in obtaining guidance from those who possess more knowledge, for there are few districts without local scientific societies through which the requisite introduction could be easily obtained on communicating with their officials.

Trees indigenous to the district may with advantage be systematically recorded in spring, summer, autumn and winter in mass and in detail under the headings, so far as applicable, of trunk, cross section of ditto, bark, branches, twigs, foliage, full leaf front and back; flower, early and full; fruit, early and full. A like method of treatment may be accorded to shrubs, flowering plants, grasses and crops. Parasitic growths and fungi call for attention; and plants in association, *e.g.* in thickets, woods, hillsides and fields should not be neglected.

Plants should, as far as possible, be photographed while growing. A series dealing with the life-history of any plant is easily secured and constitutes a valuable record.

In such subjects, the inclusion of an appropriate object to indicate dimension is most desirable. A little thought will enable a suitable object to be used. To isolate plants from distracting surroundings, the focussing cloth supported by two sticks to form a temporary background will often be found useful. Backed isochromatic plates should, wherever possible, be used in photographing plant life, and a screen or light filter will be found advantageous, while a generous exposure should be given. Isochromatic plates can be now obtained suitably stained on the surface to obviate the necessity for a light filter.

Mammals, birds, reptiles, molluscs, insects, spiders, and crustaceans should be sought out and recorded in different stages of growth and under various conditions.

Meteorology.

Forms of water, snow and ice constitute a fascinating branch of work. Characteristic cloud forms may be recorded, and meteorological phenomena should be looked out for.

Photographic representations of lightning and its effects are valuable. The former are best obtained at night by setting the camera (focussed for distant objects) to point in the direction of the storm, uncapping the lens and closing it after the flash.

CHAPTER XI

WORK AT HOME AND SPECIALIZED APPARATUS

Not least among the branches of work open to the record worker is that done leisurely at home with specialized apparatus.

The number of appliances that may at first sight appear requisite does not imply that all are really necessary for any special work ; the worker will often find it possible to so adopt the most modest apparatus as to serve a number of purposes at a very small outlay.

When much of one special class of work is done, the worker may feel the need of certain apparatus ; but before any great expenditure is incurred it is well to see what may be dispensed with.

The copying of prints, maps, book illustrations, manuscripts, etc., may be done either horizontally or vertically ; of these two methods it will be found most convenient to work where possible with the camera pointing downwards. With a simply constructed apparatus the labour of adjusting the subject in position can be greatly curtailed, much time can be saved, and many of the pitfalls which beset horizontal work can be avoided.

Simplicity of procedure is a point of great practical importance, for to overlook certain points when engaged on the work may make all the difference in the result obtained.

One of the chief desiderata in all copying work is stability, or freedom from relative movement of the camera and subject. In the vertical method this is obtained by making the stage which supports the subject part and parcel of the upright which carries the camera. When working horizontally, stability is secured by affixing both camera and copying easel to a board which can be suspended by its four corners (not by any means always convenient); or the board may be placed on a firm table, using wedges to prevent movement of the table legs.

The camera for copying work should be of long extension—the longer the better. With horizontal work care must be taken to see that the bellows do not "sag"; with vertical work this trouble does not exist. The lens should be as free from distortion as possible, and with a field as nearly as possible flat. The subject must be perfectly parallel with the focussing screen, or distortion will be present in the negative.

The horizontal method may be found necessary when dealing with a very large subject, on account of the necessity for interposing a considerable space between it and the lens to secure the necessary reduction.

Artificial light is now obtainable in such a variety of forms that work can probably be done at any time; if one source only of illumination is available, even lighting may—if the light be movable—be obtained by giving half the exposure from each side. It need hardly be said that care must be taken to ensure that no direct rays from the source of light reach the lens.

The illustration in Fig. 51, of a copying stand is almost self-explanatory. The slide to which the camera is fixed has a ratchet spring clip, the lens pointing downwards to the book. The tripod legs are supported on a three-way base, each arm 42 inches long, and marked in inches measured from the central point, with a hole at each inch for the leg point to rest in. This prevents the legs from slipping outwards and enables the tripod head to be at once adjusted horizontally.

To the underside of the three-way base (shown in Fig. 52), seven castors or "Domes of Silence" are affixed: four are used, the other three being fixed one at the extremity of each radiating arm. Each arm is hinged to a triangle of wood, the strain which might fall upon the hinges being relieved by fillets of wood on each side. When turned over upon the floor the base, bearing the camera legs, can be turned or moved in a convenient manner, enabling adjustment of the image on the focussing screen to be at once obtained by moving the camera instead of the subject. The board carrying the subject is raised a few inches from the floor by blocks at the corners, so that the base can be easily slid about underneath it. The camera support and ratchet are shown on a larger scale in Fig. 53.

The apparatus is a very useful one, but has the drawback that there is no efficient means of retaining the camera in its relative position with the subject when the dark slide is drawn. This risk can be lessened by placing heavy weights on two of the arms of the base. Apart from this disadvantage the device may be commended. It is easily set up in the same position

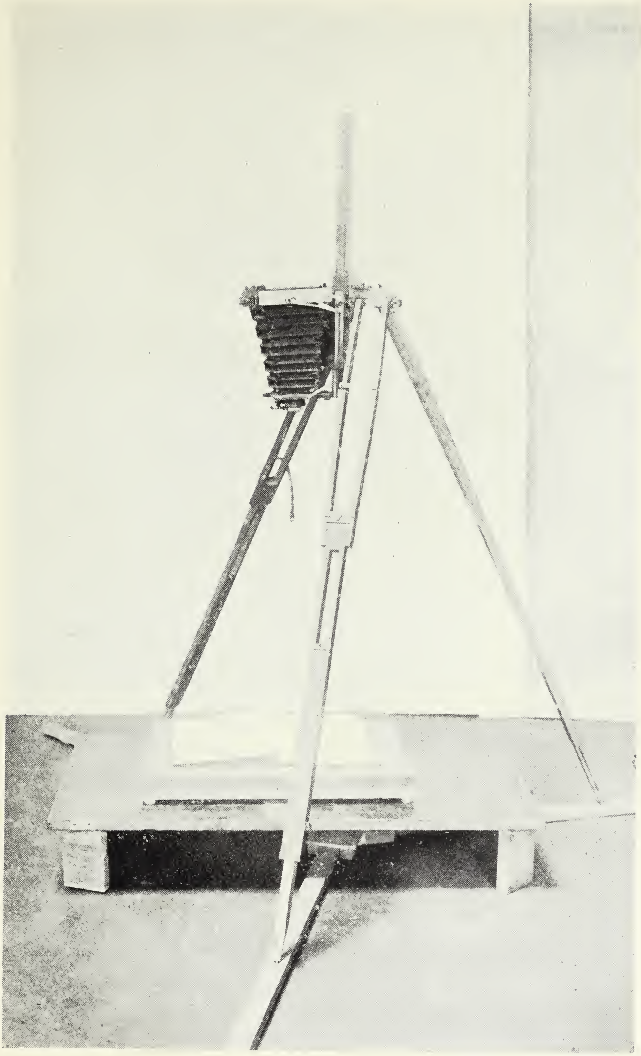

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Fig. 51.—Copying Stand.

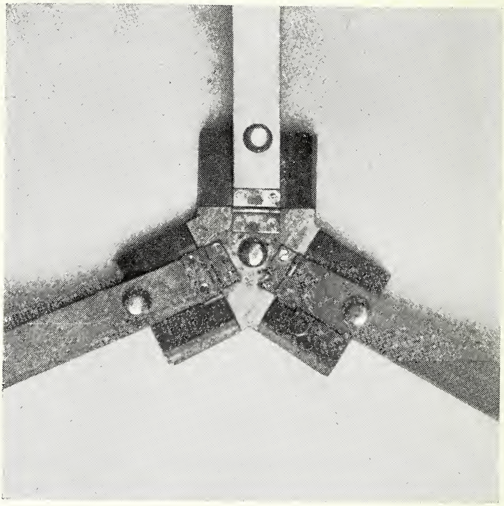

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FIG. 52.—Copying stand. Details of underside.

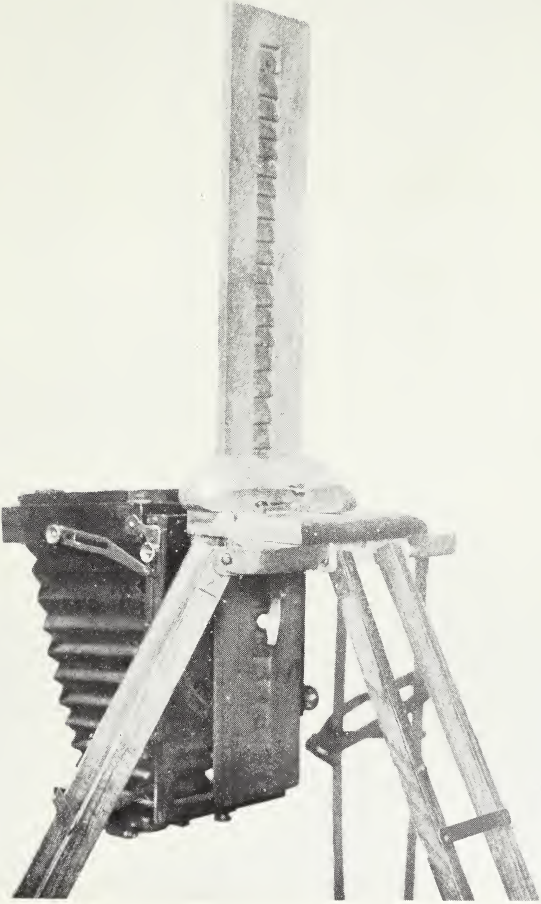

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FIG. 53.—Copying stand. Camera support and ratchet.

time after time, and may be placed near a window in the most favourable spot for lighting, enabling very even illumination to be obtained.

In copying by the vertical method maps, plans, etc., of size too large to allow of the necessary reduction, photographs may with advantage be made of portions of the subject. This permits the copy to be on a larger scale and if each photograph slightly overlap the next, reference from one print to the other is facilitated. When working in this manner, a "finder" is useful. This may be a piece of black card laid upon the subject with a rectangular opening representing the portion which can be photographed at one time. In the case of a map, if the edges of the opening be marked in white with the scale of the map, the print acquires an added usefulness.

Mention may be made of a copying camera for Libraries, which was first described in the *Photographische Mitteilungen*, and later in the issue of the *British Journal of Photography* for July 9th, 1909.

The idea is indicated in Fig. 54, A. This illustrates the front of a camera carrying a wire frame holding a surface silvered mirror set at an angle of 45°. It should be remembered that to attempt bending the wire to a fit on the mirror is to court disaster. A pattern of wood or metal should be made and the wire bent to fit this. Fig. 54, B shows the method of using. The camera is horizontal and the page of the book to be photographed is kept flat by weighted strings or wires. Here we have both subject and camera firmly fixed, and though no arrangement appears to have been provided for adjustment between book and camera, the apparatus is capable of doing good work. This defect could, in most cases, be met by raising or lowering the camera.

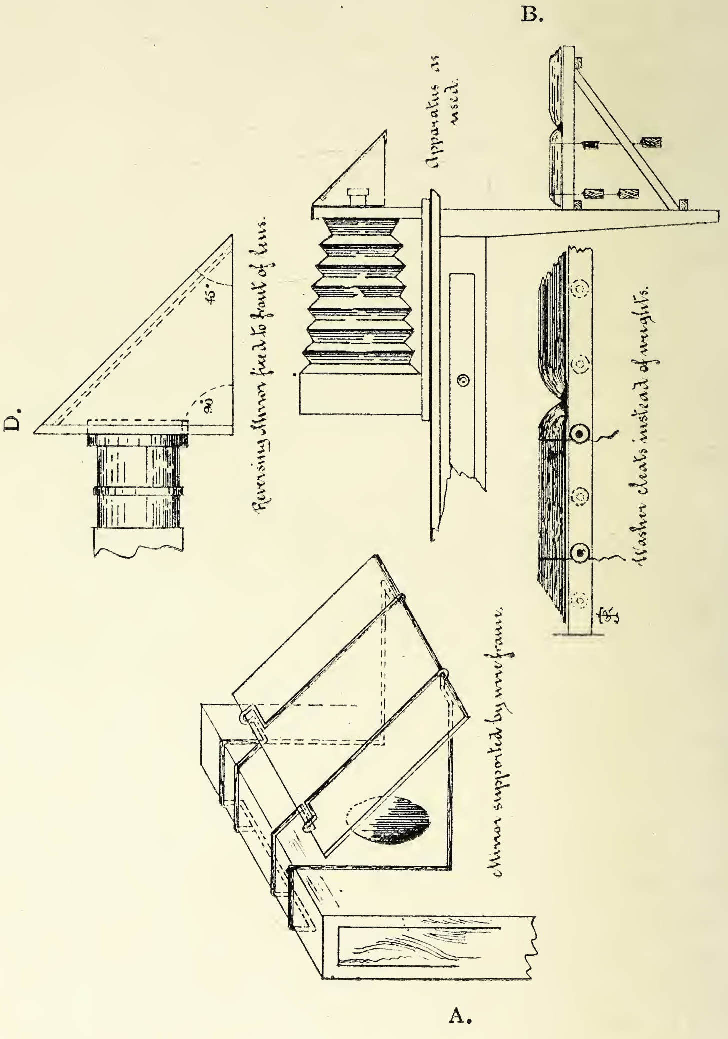
A.
B.
C.
D.
Apparatus as used.
Reversing Mirror fixed to front of lens.
45°
90°
Washer cleats instead of weights.
Mirror supported by wireframe.

FIG. 54.—Copying camera.

The weight may be an inconvenient way of keeping the paper flat, and as an alternative a row of dished washer cleats may be screwed to the edges of the shelf supporting the book (Fig. 54, C); one or two turns with the string or twine round these will be found to hold the leaves in position. Another and better way would be to lay a heavy sheet of plate glass over the page to be photographed.

With further reference to the use of a mirror in copying, Fig. 54, D shows the construction of a wooden box carrying a mirror set at an angle of 45° and with a hole of size to closely fit the lens hood. This attachment may be useful in other than vertical positions.

It will be noted that where a mirror is used, the resulting negative is reversed. This is an advantage when printing records by the "carbon" process, as the relatively simple single transfer method may be used. This reversal can also be turned to account as enabling a black on white line subject (*e.g.* a plan) to be reproduced direct on to bromide paper in the camera as white on black.

A convenient vertical copying stand is that used by the late Mr. J. H. Baldock, F.R.P.S., by whose courtesy it is illustrated in Fig. 55. The brass fittings are those used in shop window dressing, and can be purchased at small cost from any firm of shop fitters.

The base consists of two pieces of 7″×3″ deal, and the uprights, 3″ square, are let into closely fitting sockets and braced together with boards top and bottom. A length of $\frac{3}{4}''$ brass tube is let into each side of the base and fixed at the top by a collar and screw secured to the uprights. The distance between the wooden upright and tube is sufficient to allow brass collars with tightening screws to slide upon it.

Each collar supports a brass swinging arm. With this arrangement many kinds of copying work can be done: for instance, if the subject be placed upon a sheet of glass supported by the two upper arms and a board covered with light paper be placed on the lower, a shadowless background is obtained.

The vertical brass tubes could of course be affixed to any available wooden upright—*e.g.* the legs of a small kitchen table.

Another useful stand for vertical work is shown in Fig. 56. Being somewhat narrow in construction (1′ 4½″×2′ 9″), it takes up very little room and is always ready for use. The authors are indebted for this design to Mr. Jarvis Kenrick, for whom the original was ingeniously worked out by Mr. Maynard, carpenter, of Bletchingley.

Four uprights 1¾″ square are mortised into two cross pieces firmly screwed to a wooden frame and forming the base; a ⅜″ groove is carried the whole length of each upright, on the inside, allowing a rebated frame to slide up and down, working flush with the inside of the uprights.

Seven fillets of wood, 3″×1¾″×1½″, are attached to the inside of each upright, spaced ½″ clear apart, while to each slide corresponding fillets, 4¼″×3″×1½″, are attached.

These are so placed that when the slide is adjusted for height there is a clear way through the ½″ opening into which a board the width of the inside of the frame slides into the grooves and locks the whole in position; the slide may also be locked in position above the fillets by tightening up the 8″ bolt with a winged nut. The upper part of the inner frame is

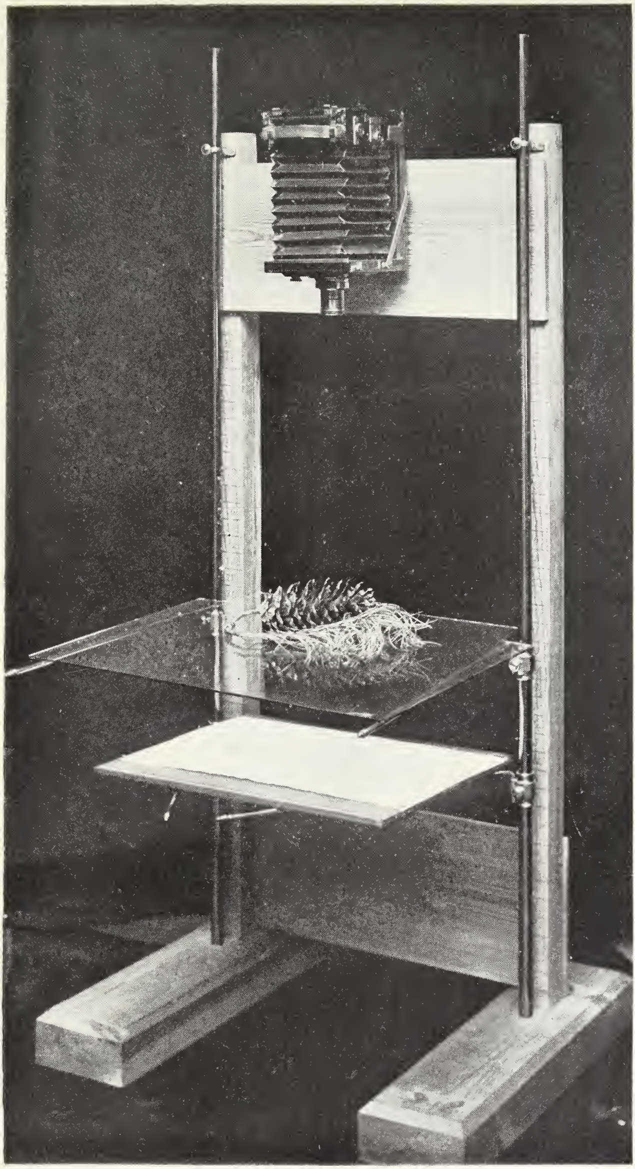

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FIG. 55.—Copying stand designed by Mr. J. H. Baldock, F.R.P.S.

braced with two pieces of wood tieing the top together, the centre having two cross pieces so arranged as to take the camera. The plan of top is as the camera

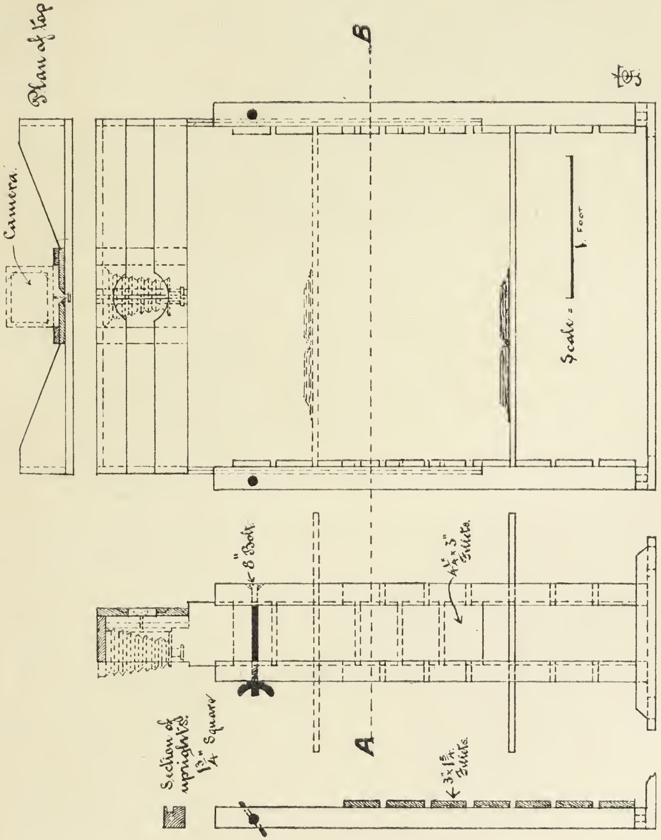

FIG. 56.—Copying stand, designed by Mr. Jarvis Kenrick. Details.

screen appears when looking down upon it. There will be seen two pieces of wood screwed upon the top to prevent any movement or bending of the top wooden brace, and to furnish arm rests when focussing.

If made in a larger size, some modifications might be necessary to take the camera base board, the top cross pieces being widened out instead of reduced, so as to got the camera lens more central. The board shown in the figure below the centre line AB engages with the grooves of the four uprights only, while the dotted line indicates the board supported by the grooves in the upper slide. The scale of the drawing must be taken as approximate only, and the dimensions can of course be modified. The perspective drawing, Fig. 57, will give an idea of the stand, showing the shelf locked by the stationary and sliding fillets. We specially commend this stand, as probably the best for all-round copying work which has been devised. The cost need not exceed between two and three pounds, while it could be home-made at a cost of a few shillings.

A very simple way of photographing, without a camera, maps, plans, engravings, or any printed or written matter is to make a P.O.P. negative. The subject to be photographed is placed in a printing frame on a piece of clear glass (this method is of course only applicable where the back is free from written or printed matter) and a sheet of P.O.P. is placed in contact with it, face to face, and clamped in position.

The print, P.O.P., and frame must of course be kept dry during printing, as the exposure is prolonged. The glass also must be clean and free from bubbles. Printing is best done in strong but diffused daylight, and must be carried to a considerable depth. The paper negative thus obtained when fixed, toned, washed and dried may be dressed with wax on the back, and ironed between blotting-paper to secure increased translucency and to reduce granular effect.

For pure line work, this process is particularly useful. Instead of P.O.P., a plate (preferably "process") may be used, exposure being made by magnesium ribbon or in any other convenient way.

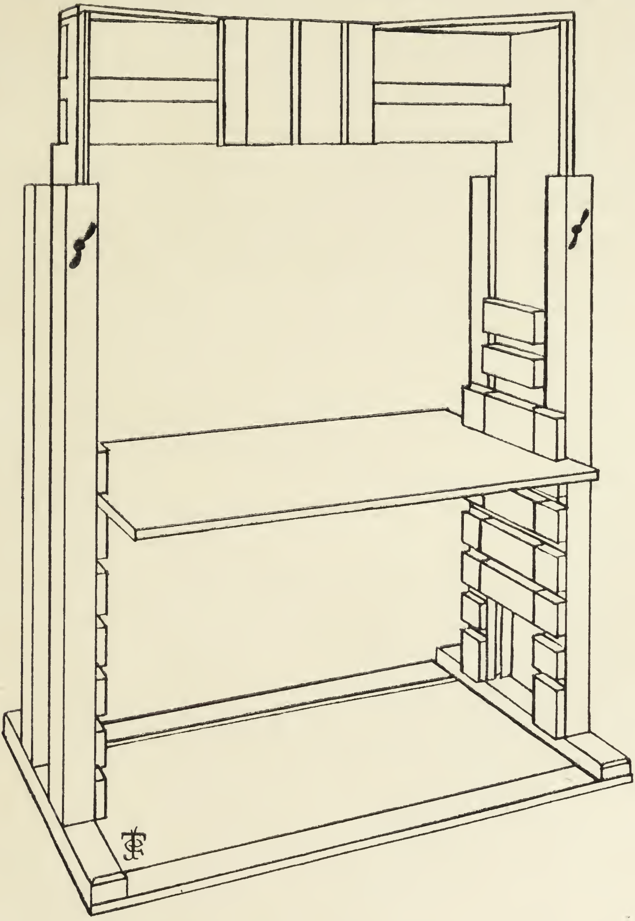

FIG. 57.—Copying stand, designed by Mr. Jarvis Kenrick. Perspective view.

If it be desired to reproduce on a glass negative a portion of a map or plan, this may be laid face upwards on a sheet of glass supported by two chairs, and the plate adjusted in position face downwards (of course, in a safe light). The plate is then backed with a piece of dark card or paper, pressed into contact by a weight (not too heavy), and exposure made by burning a piece of magnesium ribbon some little distance below the supporting sheet of glass.

Printing from negatives by enlargement or reduction can be carried out in a variety of ways. The forms of apparatus are so many and the subject is dealt with in so many books that only the bare outlines need be discussed here.

The enlarging lantern with some artificial illuminant is the apparatus most likely to be employed. It is extremely useful to have the means of utilizing portions of large negatives, but this involves a large condenser, complication of apparatus, and probably added expense. For reducing, a short focus lens or extra bellows extension between condenser and lens are requisite.

The many forms of inexpensive "daylight" enlargers are useful where the scale of magnification is constant and the worker has time available in the hours of daylight.

Any of the vertical stands which have been described can be used for enlarging or reducing, provided the camera have sufficient bellows extension. Enlargement in copying can be direct on to the negative, or bromide paper can be placed in the dark slide and the small negative laid on a sheet of glass, with a diffusing reflector (such as white blotting-paper) at an angle of

45° beneath it, thus virtually converting the camera into an enlarger.

Large negatives can often be economically printed on a reduced scale on bromide paper in the camera, and lantern slides can obviously be made in the same way by using "carriers" in the dark slides. As an instance of the use of the camera for printing negatives too large for the standard mounts may be instanced a case, known to the authors, in which a large number of valuable 12 × 10 wet plate negatives some fifty years old were printed on 6 × 5 bromide paper. In this instance the work was done out-of-doors and horizontally, the whole arrangement being clamped to a board 6 feet long, and the reflector being a sheet of opal glass. Working in summer sunshine a sheet of ground glass was placed behind the negative to ensure even lighting and with aperture F/8 the exposure required was from 7 to 12 seconds, according to the density of the negative.

A negative may often contain interesting and valuable details which may be for practical purposes lost in a contact print, but which can be effectively brought out by enlargement to a sufficient size.

As an instance let us assume a good negative of the interior of a church. This, in itself, will be valuable as a record, but examination may reveal a number of details which are more useful if enlarged as independent prints, *e.g.* the windows, corbels, capitals, lectern, may all, if not separately photographed (which, however, is much the most desirable), be printed separately, each print being stored in its appropriate place in the collection.

SCALES.

The diligent observer will often feel the need of a scale in a photograph where exactness is of importance. This there is no difficulty in incorporating in a record photograph. Fig. 58 illustrates some simple objects that can be so used. The 1″ pin wire, 1″ ball, and inch-and-centimetre scale are suitable for incorporating in a print, while the self-registering calipers and Kew micrometer will be found useful for recording measurements in the exposure note-book. The use of two of the scales named is illustrated in Figs. 59 and 60.

Sectional paper laid below the subject is occasionally useful, but it detracts from the appearance of a photograph and does not always come in the same plane as the subject, if this possess any amount of relief. Some scales (*e.g.* a disc such as a halfpenny, which is one inch in diameter) may be so placed as to be misleading. The 1″ circular ball is free from this defect, but may be objectionably intrusive; this is, however, rarely the case with the 1″ pin wire. It need hardly be said care must be taken that the latter be cut true, but with a magnifying glass practical accuracy can be attained. It will be found useful to keep several in a glass tube, so that when needful more than one can be used: positions can be assigned to them not too prominent but so that they can be detected when required in the photograph. For instance, in Fig. 61, careful examination will reveal the pin wire lying on the right of the larva. The position selected should of course be such that there is sufficient contrast between the wire and the object it lies upon.

Fig. 62 illustrates the use of a combined inch and

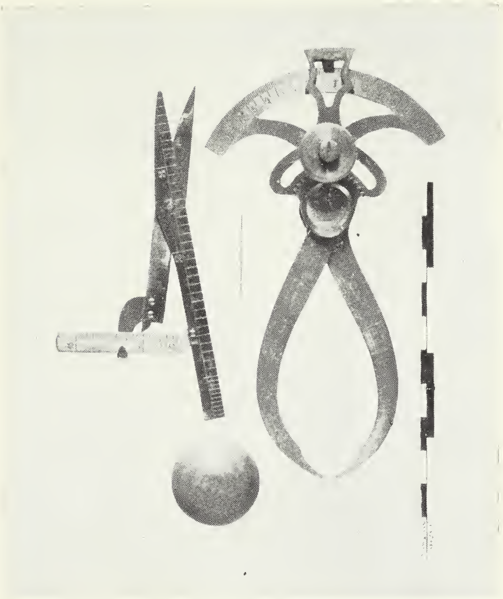

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FIG. 58.—Scales for use in photographing small objects.

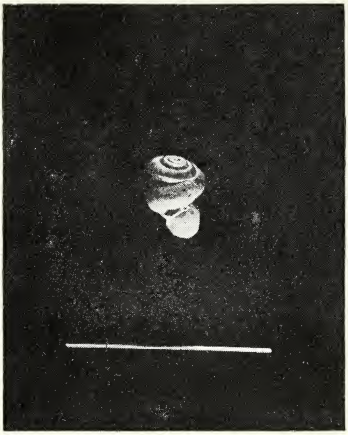

Fig. 59.—Use of one-inch pin wire as scale.

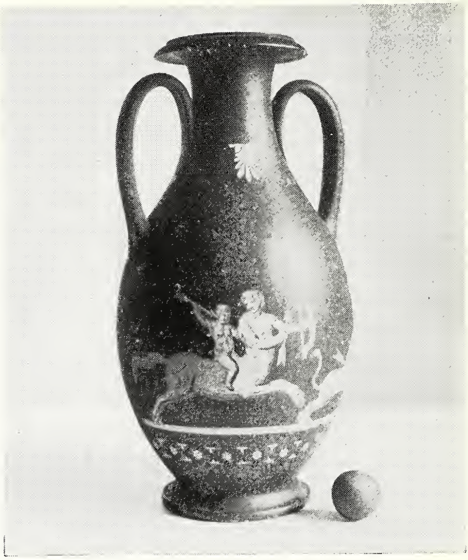

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Fig. 60.—Use of one-inch circular ball as scale.

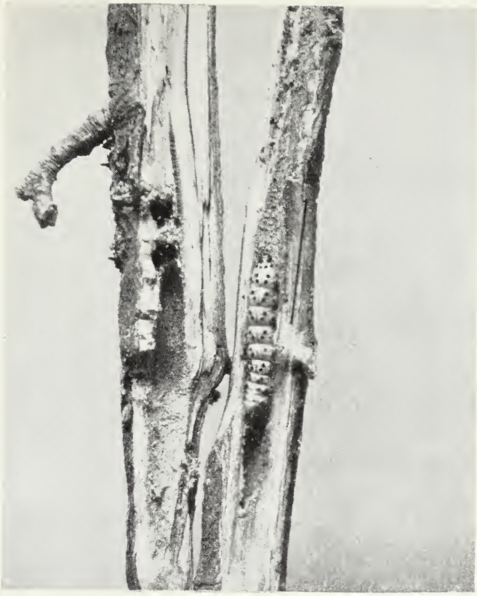

FIG. 61.—One-inch pin wire used as semi-concealed scale.

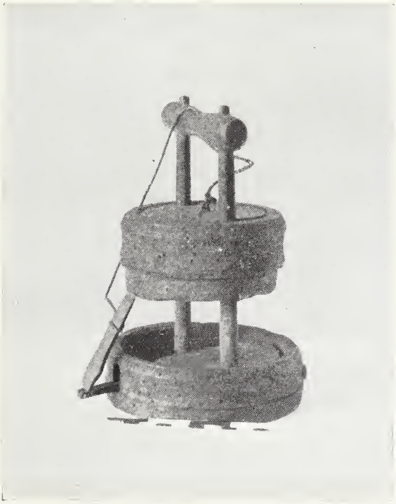

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FIG. 62.—Use of inch and centimetre scale.

metric scale. This is useful in a variety of ways and for larger objects.

Hastily improvised objects placed in the field of view to serve as scales are an eyesore, and often fail to fulfil their purpose.

When subjects are to be photographed larger or smaller than life size, if a known scale be laid beside them, the image measured on the ground glass gives, by a simple and obvious calculation, the degree of enlargement or reduction.

The adjustments to secure an image exactly life size may be found difficult, but a little manipulation aided by careful measurement will, in the end, secure the desired result. It may be borne in mind that as the extension for photographing full size is twice the focal length of the lens, and the distances from subject to lens and from lens to plate must be equal, the subject can be set up four times the focal length of the lens from the focussing screen, when, if focussing be done (where possible) by racking the lens, the image will be found of approximately the correct size. The focussing magnifier may be fitted with a metal rim carrying a glass cap ruled with lines, say ¼″ apart, or the focussing screen may be similarly treated.

While dealing with the use of scales, it may be remarked how frequently, even in photographs taken for educational purposes, small and large objects are grouped in adjacent illustrations so as to be absolutely misleading. In strictly scientific work, more care is usually taken, but the frequency with which glaring examples of what to avoid are met with warrants a reference to the matter here.

PHOTOMICROGRAPHY.

Photomicrography is here attempted to be dealt with only from the point of view of its application to survey and record work. Up to now it may be said that this branch of photography has not received its meed of attention from record workers.

This may be due to lack of the necessary apparatus, or to want of knowledge as to methods of work and the class of subjects most useful in a record collection.

The educational value of good photomicrographic prints is great, and the careful worker can, in a record collection, give the benefit of his studies to a large number of persons seeking information.

Small objects may with a lens of sufficiently short focus be photographed in the ordinary camera up to a magnification of, say, ten diameters, without employing special photomicrographic apparatus. It is convenient to have the best light obtainable, preferably sunlight, so it is well to have the camera arranged in such manner that the whole apparatus can be moved to a window or even out-of-doors.

The simple arrangement shown in Figs. 63 and 64 can be used horizontally or vertically, but experience shows the latter to be generally the more convenient position, since then a top lighting can be obtained and mirrors adjusted for illuminating the subject.

The stage is shown in greater detail apart from the camera in Fig. 65.

The base is a piece of wood, 12″×3″×$\frac{3}{8}$″. A fillet 6″×$\frac{1}{2}$″×$\frac{1}{2}$″ is screwed flush with the edge of the base on each side 1$\frac{1}{2}$″ from one end. The fillets are bevelled inwards on the inside to hold a slip of wood

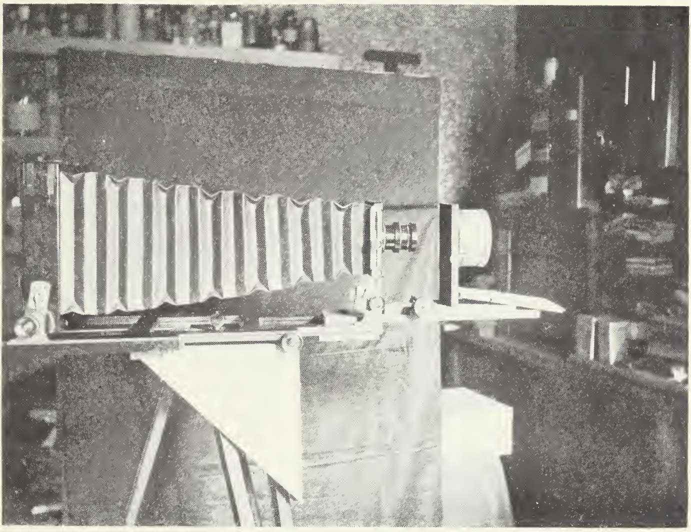

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FIG. 63.—Arrangement for photographing small objects horizontally.

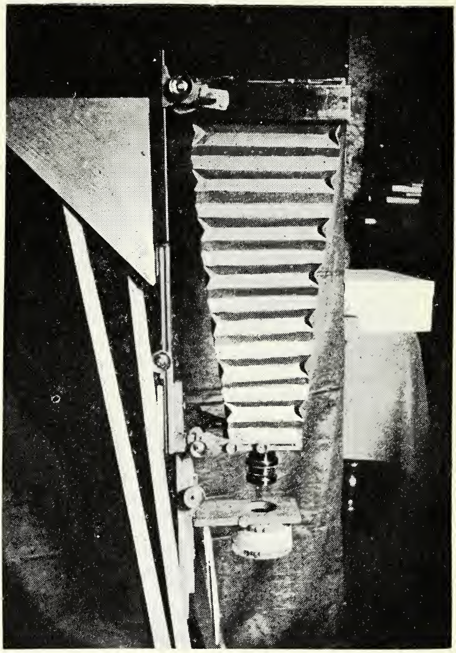

FIG. 64.—Arrangement shown in Fig. 63 used vertically.

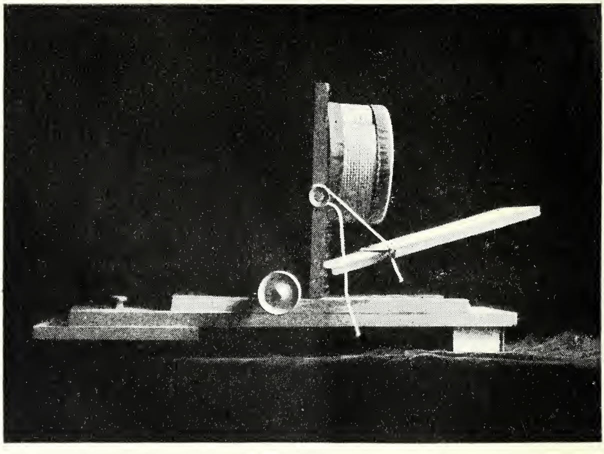

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FIG. 65.—Details of stage for photographing small objects horizontally or vertically.

6″ long, also bevelled ; this forms a slide, actuated by a rack ($3\frac{1}{4}$″ long) and pinion, the bearings of the pinion being screwed to the top of the fillets. The slide supports the stage, which is a piece of wood $5\frac{3}{4}$″×3″ with a $1\frac{1}{2}$″ circular hole about 1″ from the top. The subject rests on a piece of glass laid over the circular hole, and may be photographed with a black or a shadowless light background. A brass spring screwed at one end of the slide prevents too free play, and ensures retention of fine focus. At the camera end of the base, a board 4″×3″ perforated with a hole corresponding with one in the base constitutes a clamp, secured by a square-shouldered brass bolt and wing nut. The method of attachment may require modification to suit the camera used.

At the back of the hole in the upright, a round card box, blackened inside with dead black, and with a removable body, acts as a black background. Below this, and 1″ from the bottom of the upright, is hinged a piece of wood 6″×3″, capable of adjustment, to form a shadowless background if required. The angle of this background is determined by a piece of string attached thereto and passing round a dished washer cleat at the side of the upright. This apparatus made in white pine, weighs 12 ozs. It has done duty for some years, and while costing little to make, has been found quite satisfactory in use.

To lessen the cost of plates, the ground-glass screen shown in Fig. 66 may be removed, and a false back (Fig. 67) substituted. This will carry a fine focussing screen and take smaller dark slides ($\frac{1}{4}$ or even $3\frac{1}{2}\times2\frac{1}{2}$ for a half-plate camera). If critical focussing be desired, resource can be had to a slightly fogged plate, developed, fixed and whitened with mercuric chloride and used in a double back with both slides drawn, the double back serving also, if desired, to carry the plate after being used for focussing. For finer work still, plain glass may be used and the aerial image focussed with a magnifier.

This apparatus places in our hands the means of photographing small objects (*e.g.* butterflies, shells, etc.), falling between the range of work of the ordinary and that of the photomicrographic camera. It will be found that in addition to the use of supplementary lenses (dealt with in Chapter XIII.), low power *achromatic* microscope objectives may be used in the camera, providing a lens flange or adapter be obtained. The special camera lenses of 1½″ to 2″ focal length made by many of our optical firms are of course the best for this class of work.

Fig. 68 illustrates perhaps the simplest form of combined camera and microscope, yet one capable of turning out good work. It consists of a wooden box 5″×5″×4″, open at top and bottom. To the top is glued a board 5½″×5″×1″ with an opening 4″×3″, and on this are fastened fillets of wood and projecting strips of card or metal to take the dark slide. The other end of the box is fitted with a card, in the centre of which is a circular hole to take the microscope tube or eyepiece, and to this is glued an open-ended pill box. To the side of the box is fixed a board 13″×1½″×¼″, projecting 8½″; on the projecting part are fixed, about 5½″ apart, blocks 3″×2″×1½″ with grooves to fit the microscope tube. The whole is then clamped to the tube by strong rubber bands hooked on to projecting screws in the blocks. The connection between pill box

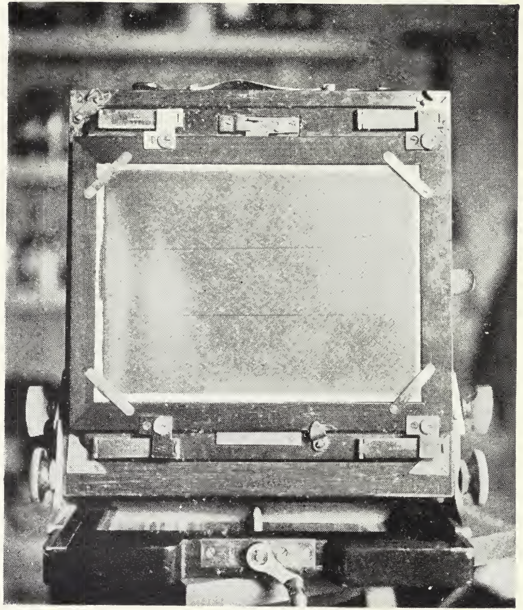

Fig. 66.—Groundglass back of half-plate camera.

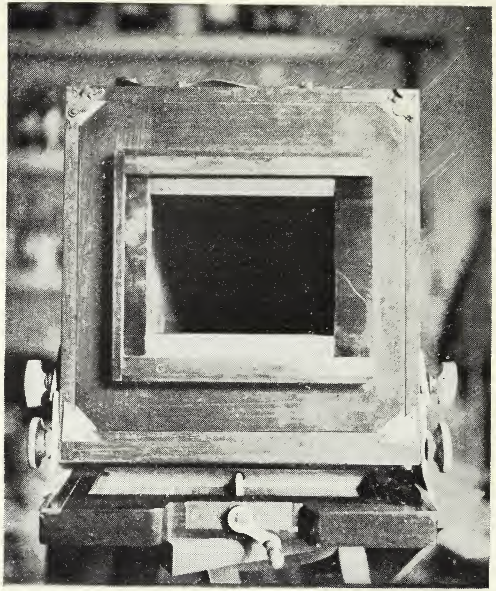

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Fig. 67.—False back taking quarter plates in half-plate camera.

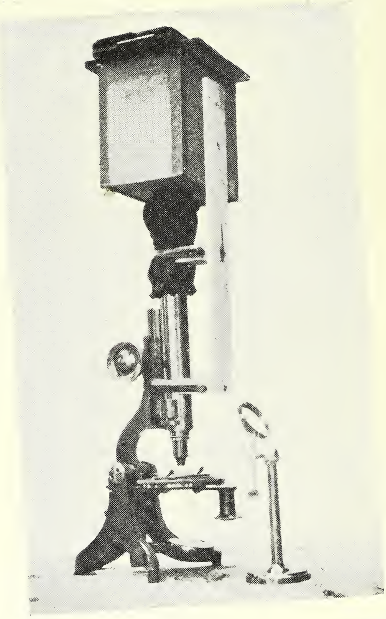

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FIG. 68.—Simple attachment to microscope for photomicrography.

and microscope tube or eyepiece is made with a sleeve of double black sateen, held in position by rubber bands.

The distance from microscope objective to plate is fixed, and focussing is done by the microscope rack, the whole apparatus being moved to or from the subject; the magnification is thus constant with any one objective. It will be noticed that this arrangement, being as it were all in one piece, is fairly free from the bugbear of vibration, and being vertical takes up but little space.

When, however, the magnification becomes too high for the necessary fine focus to be obtained, the microscope stand with its fine adjustments becomes essential.

Fig. 69 illustrates a more elaborate arrangement, which can, however, be home-made. It allows variation of the distance between objective and focussing screen, with consequent variation in the degree of enlargement. Hence it is of more general utility than the foregoing, and is suitable for use with more powerful objectives. The camera (1) must focus by racking the screen to and from the lens, not by movement of the lens panel. The microscope (2) is placed so that the eyepiece projects slightly into the hole in the lens panel (the camera lens being of course removed), the junction being made light-tight by one or two rolls of black cloth. (3) is the condenser; (4)—which can sometimes be dispensed with—a glass trough containing suitable coloured solutions, or a screen when monochromatic light is required. Unless the objective be truly achromatic, however, this addition is essential. (5) an incandescent gas mantle. Other illuminants can of course be used. The whole is set up rigidly on a board about 4 feet long, care being taken to see that

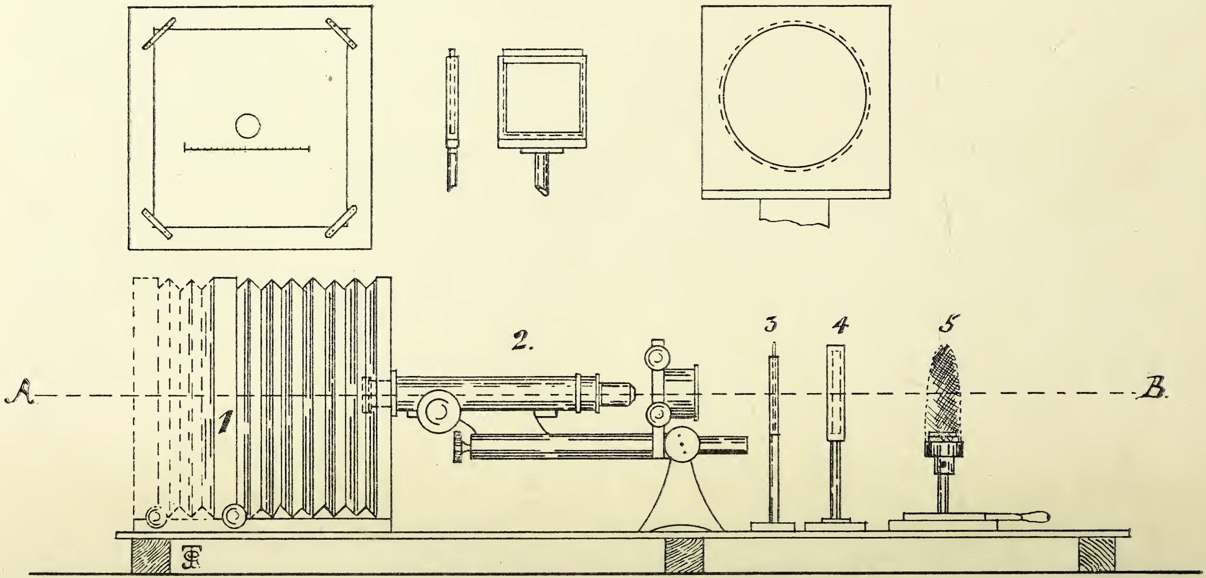


FIG. 69.—Apparatus for photomicrography.

the centreing along AB is exact. This may be levelled by three blocks. It is convenient to affix, as shown, a microscopic cover glass—with Canada balsam—to the centre of the focussing screen, and to rule below it a line marked in millimetres. This is most conveniently drawn on the ground glass with a fine pen and Indian ink. Often better results can be got by dispensing with the microscope eyepiece, though the magnification then is of course lessened.

The screen holder is easily constructed, or for even greater simplicity a square glass bottle containing acetate of copper solution may be interposed between the condenser and microscope. The condenser may be of the bull's-eye form usually supplied with a microscope, or a lantern condenser fitted in a block of wood may be used.

The junction of microscope and camera flange hole may be made light-tight with a cone of black paper, thus permitting focussing with the microscope rack without the entrance of light. The interior of the microscope tube should be carefully examined to see that no "shine" is present; if it is, a roll of black paper, the length of the tube, should be inserted and sprung out to fit, to obviate "flare," which is particularly likely to exist if work be done without the eyepiece.

The relative position and height of each portion of the apparatus should be carefully adjusted once and for all. This will save an immense amount of time in use.

A little time spent beforehand in testing the adjustment of the light, ascertaining the magnification given by each objective with and without the eyepiece, colours of images when using different coloured screens, and the like, will not be wasted; it will result in the saving of plates and in more satisfactory work generally.

It should be remarked that not all microscope objectives are suited for photographic work; to lessen risk of failure it will be found well to consult the makers on this point.

CHAPTER XII

THE RECORD PRINT—AVAILABLE PROCESSES

THE positive image, in which the degrees of light and shade in the original are with more or less fidelity reproduced in monochrome, which is, or should be, the ultimate goal of the photographer's energies through the successive stages of making the negative, can be now produced in an almost bewildering variety of colours and on a wide range of materials, for instance, paper, cardboard, glass, metal, wood, ivory and celluloid.

Any classification of the processes nowadays available in their order of merit must be preceded by a decision as to what kind of print or picture is desired.

Thus, to those photographers who desire to infuse individuality into their work, such processes as gum-bichromate or pigmoil will appeal, by reason of the extent to which they are amenable to modification of the image at various stages.

The record worker, however, for whom this book is primarily designed, will seek other qualities, and chief amongst them may be placed permanence of the image and straightforwardness of manipulation, with capacity to record detail and produce in accurate gradation a wide range of tones.

It is sought in this chapter to set forth the essential nature and the relative advantages, as seen from the record standpoint, of the photographic printing processes of to-day, premising that for general convenience and ease of handling and storage the prints must be on paper.

No attempt is made to give working instructions, as each maker issues in full detail the methods of work best suited to his products, and no variation from them is likely to be of advantage to a beginner.

Platinum.—Thus regarded, there is but little doubt that the platinum process is *par excellence* the one for the survey worker.

It gives an image in the most permanent of metals—platinum—and will render, by gradations of almost infinite fineness, tones ranging from that of its paper base through fine greys to a deep velvety black, while it is capable of recording as fine detail as any negative taken for record work is likely to possess.

Further, its cost is by no means so great as is often thought, and there is no easier process when the work can be done in daylight and in fine dry weather. The paper is impregnated with salts of iron and platinum. The former are acted on by the light and when immersed in the developer (consisting principally of potassium oxalate) the platinum is substituted for the iron, the remaining traces of which are then dissolved out by weak hydrochloric acid.

There is now available a modified form of platinum paper, made by the Platinotype Company under the name of "Satista," in which a faint platinum image is strengthened with one of silver. As the price approximates to that of bromide paper the process should be one worth consideration from a record point of view.

Carbon.—Next in order of merit will come the carbon process (so called), in which the final image consists of pigment embedded in a matrix of gelatine which has been rendered insoluble by the action of light on certain salts of chromium, with which it has previously been impregnated. This process gives results second to none in beauty, and excels in the glossy translucency of the shadows, while the permanence of the image is equal to that of the paper or other substance it is printed on.

The great drawback to the carbon process for the record worker is that by the nature of the case the simple single transfer process (in which the image is seen reversed from left to right, *i.e.* as one sees it when looking through a negative with the film side towards one) is ruled out (so far as negatives on glass are concerned), and all work must be done by the double transfer process, which involves a second set of manipulations: these are beset with several pitfalls, only to be avoided by experience.

Ozobrome.—With the carbon process may be classed ozobrome, a comparatively recent modification, in which upon the image of a bromide, gaslight, or untoned P.O.P. print is superimposed one consisting of pigment embedded in insolubilized gelatine—to all intents and purposes a carbon print. If desired, this superimposed image can be transferred to another support and the original print (if a bromide) restored, and this process can be repeated many times. This process, as also that next described, is free from the difficulty of double transfer, and it will be found useful as a means of converting into a permanent print valuable records which can only be obtained as silver prints.

Carbograph.—With ozobrome also may be bracketed "carbograph," in which the reactions involved in the bromide process are made use of to effect the production of a carbon image, while eliminating that separate production of a silver print which is the characteristic feature of ozobrome. Both the foregoing processes have the advantage that enlargements may be produced direct from the original negative, and thus the production of a transparency and an enlarged negative is not required.

Gum Bichromate.—The gum bichromate process is capable of producing prints eminently suitable, from their permanence, for a record collection, but the danger in this process is the facility with which the character of the record can be modified in the process of development, which in this case consists of washing away with cold water so much of the pigmented gum as has not been rendered insoluble by light action. It has the merit of being inexpensive, but the worker has the trouble of preparing his own paper.

Pigmoil and Bromoil.—The first-named drawback applies also to the pigmoil and bromoil processes. In the former a surface of plain gelatine is impregnated (much as in the carbon process) with a salt of chromium, either potassium bichromate or ammonium bichromate, and on being exposed under a negative to daylight becomes insoluble to the extent to which light acts upon it. It also becomes incapable of absorbing water, and thus, if the paper after exposure be well soaked, only those portions which have been shielded by the deposit in the negative from the action of light will absorb the water, those portions on which the light has acted remaining unaltered. The surface at this stage is therefore like that of a prepared lithographic stone: that is to say, where the gelatine has absorbed water it is repellent to a greasy substance. If, then, a brush lightly charged with an oil pigment be dabbed upon the surface the pigment will adhere to those portions of the surface which have been rendered insoluble; in other words the shadows of the print will ink up.

The bromoil process bears to pigmoil the same relation as does ozobrome to carbon; in bromoil, a silver image in gelatine is first formed and then the gelatine is by chemical process rendered insoluble in so far as it has silver molecules deposited in it, while the silver image is bleached out.

After drying, the subsequent treatment, soaking and pigmentation, follows the lines of pigmoil, and the bleached silver can at the end be either redeveloped to its original state of blackness or dissolved away.

These oil processes, which perhaps more than any other appeal to the worker who wishes to combine the expression of his own artistic impression with the image produced by pure photography, are (like gum bichromate) open to the objection from the record point of view that it is by no means easy to confine the process to the strict reproduction of the object photographed. Records of great value can be, and have been, produced by their means: but to produce these requires a degree of manipulative skill not given to all, and a sterling honesty of purpose that can resist the almost overmastering tendency to "fake" the result. Hence, prints in gum bichromate, pigmoil, or bromoil are to be regarded with some degree of suspicion by a Photographic Record Society's officials.

Bromide.—The bromide process has much to commend it. It can be worked by artificial light, a great convenience to the many photographers whose opportunities for the pursuit of their hobby during the hours of daylight suffice for little more than to make negative exposures, and it is simple and uncomplicated.

Prints can, by its means, be produced either by contact or, with the aid of inexpensive apparatus, they can be produced in practically any desired degree of enlargement or reduction.

The bromide film is closely analogous to the negative film or plate, and bromide paper consists practically of a slow emulsion coated on to paper instead of glass or celluloid.

The processes of development and fixation are similar to those for negatives. A bromide print, sufficiently fixed and thoroughly washed, possesses a high degree of permanence, but unless the fixation and washing be conscientiously carried through, the prints are liable to discoloration and fading.

Bromide prints can, with great facility, be toned to many shades other than the black produced in the first instance by the simple deposition of silver in the film, but toning of bromide prints has little to recommend it from the record point of view, no print being more useful than the plain black, and, if we except the chocolate or brown image (consisting of sulphide of silver), produced by the hypo-alum and redevelopment processes, the permanence of toned bromides is very doubtful.

Gas-light.—The gas-light processes (so called) have many points of convenience, and with them negatives can be made to yield prints of greater vigour and contrast than the same negatives will yield by any other process.

Essentially they are all a modification of the bromide process: the sensitive emulsion, however, consists in their case partly of silver chloride, and their speed is so slow that they can usually be worked in safety by ordinary artificial light, if care be taken to shield the paper from direct rays till fixation is well advanced.

Hydrazine.—The combination of hydrazine with salts of silver in the gelatine emulsion has led to the introduction of negative and positive plates which are practically incapable of over-exposure. In the positive form of the process, the emulsion is coated either on glass, paper, or sheets of thin semi-transparent celluloid, and these can either be printed out and fixed in plain hypo solution (giving brown tones) or treated in the same manner as gas-light papers. The process is an interesting one and suggests possibilities of great development.

Ensyna.—A recently introduced process, called by the makers Ensyna, has many points of interest. It resembles in working the gas-light processes. The sensitive emulsion, however, is produced by means of phosphate of silver, and the developer, unlike most of the developers used in other processes, which require to be alkaline, is of an acid nature. The silver is dissolved out by the developer and redeposited (by a physical process analogous to that of the gold toning of P.O.P.) in colours ranging, according to the exposure given, from blueish-purple to red.

The chief feature of the paper is its wide latitude of exposure, variations within enormous limits having no other result than to determine the colour of the resulting image.

In this respect it contrasts favourably with the bromide and gas-light processes, in each of which very accurate exposure is essential to the production of a good print. The makers claim permanence as characteristic of the prints, and this claim has been supported by competent authorities, but the paper is of too recent introduction to admit of conclusions based on actual experience. One point in its favour is the short time taken by the various processes ; a finished print being produced in a few minutes. Great care and cleanliness in working is necessary to avoid staining. The process can be applied to the production of transparencies or lantern slides.

Blue Print.—Mention should perhaps be made of the iron printing process, known as the " blue print " : in this the resultant image is in Prussian blue (a very stable pigment) on plain paper. The process is extremely cheap and easy, consisting merely of exposure to strong light and washing in cold water, and the results are, for certain subjects, pleasing, while the paper is quite readily home made.

The gradation of tones is, however, very poor, and the process is of little use save for merely diagrammatic results. By a modification of the process prints in black on white or white on black or brown can be obtained.

P.O.P.—Lastly comes the process with which nearly every beginner in photography makes his first essay at printing, the silver or P.O.P. process (print out paper).

That this should be so is strange, for, save in the case of the self-toning papers (in which the gold which is to be deposited in the silver image is incorporated with the emulsion), the process of toning is a tedious and uncertain one, and by the time the print is finished any advantage looked for from the low first cost of the paper is lost through the cost of the gold toning operation. Toning can be done without gold, but the results are quite unreliable from the point of view of permanence. The image, produced by printing in daylight, is a visible one, consisting of silver deposited from the emulsion of silver chloride in gelatine or collodion with which the paper is coated.

The process has the advantage of rendering fine detail well, but it is not to be recommended for the production of records, and Survey and Record Societies should either refuse to admit these prints to their collections or accept them merely as stop gaps, to be replaced by prints of a more permanent character. P.O.P. prints untoned can be converted into ozobromes and then lose their fugitive character.

Transparencies and Lantern Slides.—The production of diapositives or transparencies should perhaps not be overlooked in any list of positive processes. The most useful form which these take is that of the lantern slide. This is practically a bromide or gas-light picture in which the emulsion is coated on glass instead of on paper, and the remarks made above about these processes are applicable here.

Colour Photography.—It may well be that in the near future the processes of colour photography, which are now coming so much to the front, may take a prominent place in record work. There are subjects, for instance, stained glass windows in churches or elsewhere, for which a colour rendering is infinitely preferable to one in monochrome.

They may be classed into two main groups. The first may be termed the additive process (Autochrome, Paget plate and the like), whereby a transparency on glass is produced by exposing a panchromatic emulsion through a screen consisting of lines, dots, or patches of the three primary colours, red, green, and blue-violet in close juxtaposition: the plate being then developed, the deposited silver dissolved out, and the silver bromide which is left exposed directly to light and developed up. In a modified form of those processes in which the dots or patches are regular in shape and arrangement, a negative can be taken through a screen plate on a separate sensitive plate. From it a positive is obtained upon a plate coated with slow emulsion (*e.g.* a lantern plate). This is bound in register with a colour screen plate, when the colours are reproduced. This obviously permits of producing several copies from one negative.

The image consists of minute dots of the three primary colours in the varying proportions necessary, when blended together, to reproduce the colour of the original. These dots are so minute that the eye cannot see them separately and obtains the blended effect, just as in nature the mixed colours up to white are obtained by the physiological process of blending colour impressions. The second or subtractive process is based on the production of three negatives, each taken through a screen of a colour complementary to one of the three primary colours—orange-red for blue, green for red, and blue-violet for yellow. The negatives thus obtained are printed on to thin carbon films of the colours they are to reproduce (*i.e.* their complementaries) and then are bound together with glass as a transparency or laid on paper, great care being necessary to secure accurate registration. By the use of the gum bichromate process, three transparent colours can be successively printed direct on to paper or glass.

The latter class of process, it is evident, admits of the production of a print on paper, while the former is at the present time serviceable only for a transparency or lantern slide, but the greater ease in working and simplicity of the former process make it at present by far the most useful.

There is a paper called by the inventor "Uto," on which are coated three dyes of the primary colours sensitized in such a manner that when acted upon by light of other than their own colour they bleach out. If this paper be exposed under an autochrome for instance, the red dye only will remain under the red dots, and so on.

The exposure required is long, though recent improvements have reduced it, and there is great difficulty in securing an equal degree of light sensitiveness in the three dyes, so although the process is an interesting one and suggests possibilities for the future, it can hardly be ranked at present as other than in the experimental stage.

CHAPTER XIII

WORKING MAKESHIFTS AND MISCELLANEOUS FORMULÆ

In this chapter are brought together a few formulæ and notes on working makeshifts that will probably found useful in overcoming some difficulties that may be experienced by the survey worker.

No attempt has been made at an encyclopædic treatment of the subject ; the matters dealt with have all a more or less direct bearing upon previous chapters, and are brought together here for convenience.

Methods for recovering Faded Negatives and Prints.

Negatives.—1. Good results may sometimes be obtained by making a contact positive upon a slow plate, with full exposure, and from this making another negative.

2. The negative may be soaked for some hours in water, treated with a strong developer, well washed, and then toned with gold, the toning bath being made with ammonium sulpho-cyanide. This method is, however, not very reliable.

Speaking generally, however, the safest method is that of double reproduction to produce another negative, at all events in the first instance, as it is easy to destroy by careless manipulation what little image there may be.

Prints.—Silver prints, if valuable and yellowed by age, are best copied by using an orthochromatic plate and yellow screen. If an attempt be made to deal with the print itself, if should be first removed from the mount dry (see notes on this subject in Chapter V., p. 69). Then after a good soaking in water the adhesive may be carefully scraped off the back. The print is then well washed and treated with equal parts of the following solutions :—

A.	Nitrate of silver	¼ oz.
	Glacial acetic acid	1 dram.
	Water ,, ...	6 ozs.

B. A saturated solution of gallic acid in water.

The print is then well washed. This treatment may not improbably strengthen the image considerably.

Many other methods of restoring faded silver prints have been suggested, some of them involving the use of salts of mercury. The permanency of prints thus restored is more than doubtful, and the process should be used merely as a means of enabling the print to be copied and printed in a more permanent form.

The image of platinum prints does not fade, but the prints may yellow with age ; this arises usually from insufficient washing, occasionally from the use of an unsuitable mountant. In such cases the paper may be found rather rotten when unmounted, but if originally good, treatment with the usual hydrochloric acid bath used in platinum printing followed by a *thorough* washing will usually put matters right.

Engravings, etchings, and black-printed subjects do not come strictly within the scope of this work, but it may be noted that these, if the paper is very yellow, can usually be bleached in a 10 per cent. solution of chloride of lime. If a quarter of an hour's soaking in this fails of effect, a few drops of hydrochloric acid may be added to the solution, the print being, of course, removed from the dish while the acid is added.

Another useful bleaching solution consists of:—

Potassium chlorate ..	5 drams.
Hydrochloric acid ..	2½ ,,
Water	10 ozs.

Chlorinated soda is another powerful bleacher. Coloured prints may be treated with hydrogen peroxide, but its use is not to be recommended except as a last resort.

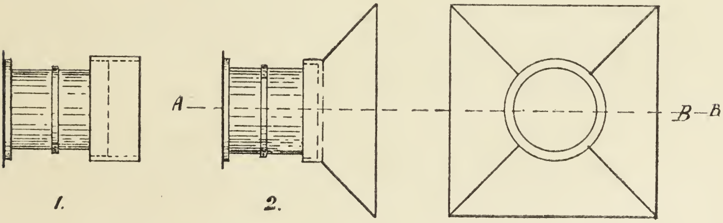
It must be remembered that all bleachers containing free chlorine are likely to rot the paper if exposed to their action for too long a time, and such paper when dry will crumble like tinder. Platinum prints must never be treated with hydrogen peroxide, as it changes the platinum into the spongy form.

The case must, however, be very bad indeed if a fairly printable negative cannot be obtained from a faded or yellowed black and white print or engraving by copying, using of a colour screen and suitable plate and thus avoiding the dangerous process of bleaching.

"Sky" or Lens Shades.

Many lenses of modern type are insufficiently protected from extraneous light, as any light not needed for production of the image, after passing through the lens, reaches the plate in a diffused form from interior reflections and a "fogging" is produced. This failing is especially noticeable in lenses combining large working aperture with fairly wide angle. Great improvement of the image can be attained by the use of a projecting shade so designed as to shield the lens from all unnecessary rays.

A simple and effective device is a roll of thin card or stout paper (of course black or dark), which is slipped over the lens and moved forward sufficiently to produce the desired effect (see Fig. 70). A serviceable temporary expedient is a cylinder of brown paper held in place by a rubber band. This method, however, is only available when the lens has a "behind" or "between" shutter. In other cases a cap must be made to fit the projecting card circle. With many shutters working in front of the lens, sufficient protection is obtained, as the front lens then lies well back. Single lenses, which as a rule lie behind the diaphragm, are generally free from this defect. The figure also illustrates a more pretentious form of shade.



Sky Shades.

FIG. 70.

This may be made of thin wood or card, attached to a collar of cardboard fitting the lens front. The inside must, of course, be blackened.

Intensification of Negatives representing Linework.

The best results in photographing subjects requiring black and white only are attained by the use of "process" plates. These are very slow, have an extremely fine grain, and tend to give great contrast. Other plates (the slower the better) may, however, be used if care be taken to get correct exposure. Sometimes a negative, while sufficiently dense, will have a slight veil over the lines. These should be cleared with "Howard Farmer Reducer" (a mixture of solutions of potassium ferricyanide and hypo). If, after reduction, further density be found requisite, the negative should be *well* washed and placed in a 1 in 16 solution of bichloride of mercury. This will bleach the image. Well wash again and "fume" with ·880 ammonia by supporting the negative face downwards over a dish containing the ammonia, covering the whole up. The darkening will be gradual and the result be free from pinholes. Mercuric chloride is, however, highly poisonous, and if its use be objected to the negative may be intensified by lead.

Make up the following solution :—

Lead nitrate	½ oz.
Potassium ferricyanide ..	¾ oz.
Acetic acid	1½ drams.
Water	10 ozs.

Mix first the water and acetic acid, then dissolve the lead nitrate and ferricyanide. The mixture keeps well. The negative (well washed) is placed for a few moments in a solution of acetic acid 1 dram, water

5 oz. It is next placed in the nitrate solution until bleached through, and well washed; the film is then carefully cleared of any deposit by gently rubbing with a pad of cotton wool.

The image can then be darkened in a 5 per cent. solution of sodium sulphide (not sulphite). A thorough final washing completes the process. Care must be taken in handling the film, as acetic acid makes it very tender.

"PINHOLES" FOR LENSLESS PHOTOGRAPHY.

This method of obtaining an image is particularly useful in confined situations, where the angle of view required is greater then can be obtained from a lens.

Sets of pinholes can be purchased, but they can be easily made by the worker.

A piece of thin brass is carefully flattened. Then a small dent is made in the metal with a centre punch by *gentle* taps. The "pimple" on the reverse side is carefully rubbed down and a further projection obtained by another gentle tap, this again being rubbed down and the process repeated till the metal in the centre is extremely thin. The perforation can then be made. A small needle (say No. 10) is pushed through a small cork, leaving about ⅛ inch of the eye end projecting; break off the point close to the cork with a pair of pliers. Place the prepared brass, with the cavity upwards, on a piece of soft wood grain end on, place the broken end of the needle against the centre of the cavity and give a sharp tap to the head. This will give a fairly clean hole. The needle should be pushed through and the projecting burr rubbed off with fine emery paper. The brass can then be blackened by heating it and placing it in a solution of silver nitrate, or carbonate of copper and ammonia. It should then be mounted between two pieces of thin blackened card, punched with holes of suitable size, and fastened together. The card can then be trimmed to fit a brass flange which in turn fits the lens flange, or it may be fitted to an extra front on the camera. It should be noted that as a very wide angle of view may be required, no mounting of any considerable depth must be used. Fig. 71 is self-explanatory.

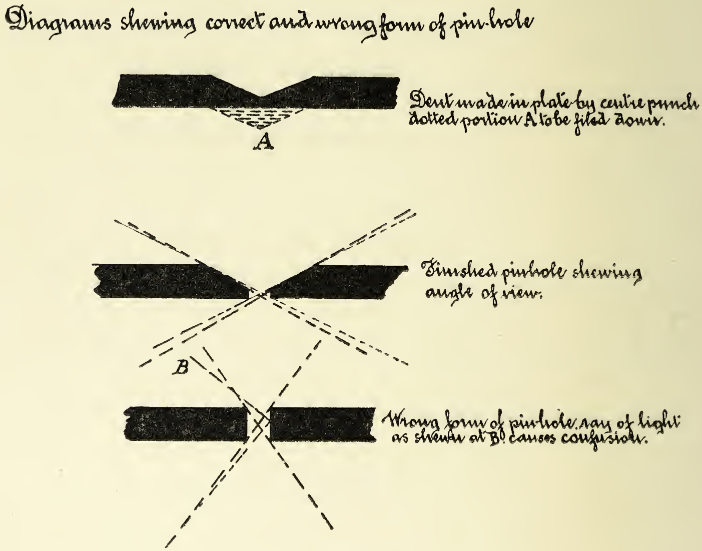

Diagrams shewing correct and wrong form of pin-hole
Dent made in plate by centre punch dotted portion A to be filed down.
A
Finished pinhole shewing angle of view.
B
Wrong form of pinhole, ray of light as shewn at B. causes confusion.

FIG. 71.

SYPHON ARRANGEMENT FOR WASHING.

Where the water supply in a dark room is continuous, convenient arrangements can be easily constructed, as shown in Fig. 72. A piece of lead pipe is procured of diameter sufficient to go round the

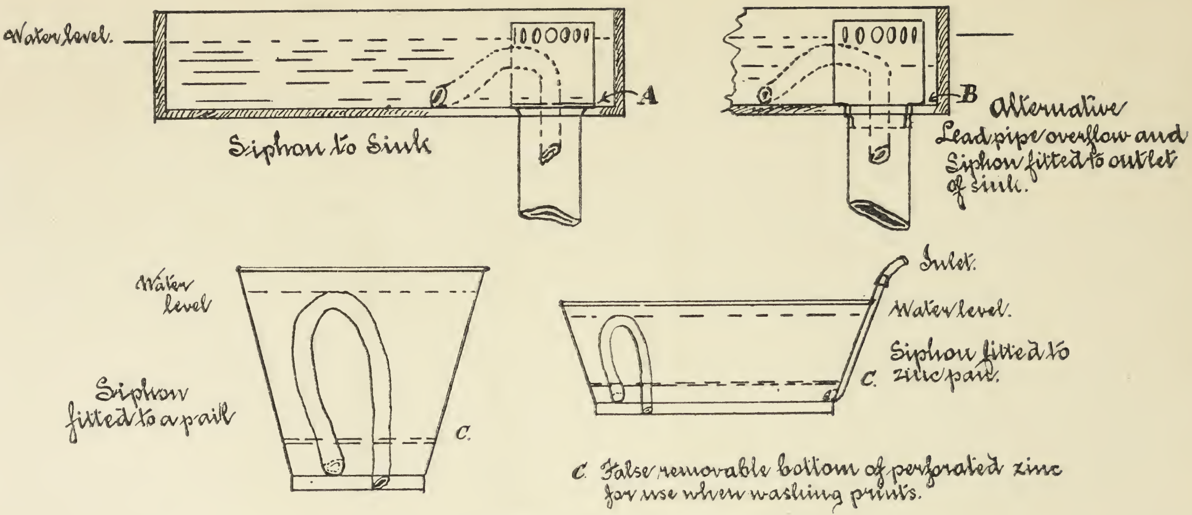


FIG. 72.—Syphon arrangement for washing.

strainer of the sink. The length should be nearly that of the depth of the sink. Near one end holes are bored to provide an overflow. The syphon tube is carried through a hole just below the overflow holes, and passes at one end a short distance below the bottom of the sink into the outlet. The other end is carried, outside the pipe, to the bottom of the sink. The junction of sink and lead pipe must be made water-tight or practically so. This can be done with paraffin wax, as shown at A. As an alternative, the lead pipe may be made to fit closely the sink outlet as shown at B. If, now, water be allowed to run into the sink at a rate less than that of the syphon discharge, an alternating process of slow emptying and rapid filling is set up. If the inflow be through a pipe brought to the bottom of the sink and turned slightly along one side, a circulation of the inflowing water is produced, which is useful for washing prints. This pipe may consist of a piece of rubber tubing slipped over a strainer affixed to the tap. When the arrangement is used for washing prints, a false bottom of perforated zinc for them to rest upon after each emptying is advantageous.

Supplementary Lenses and Magnifiers.

The focal length of a lens can be modified by combining with it another lens of different focal length. This is usually done by utilizing as the supplementary lens a thin single lens (*e.g.* a spectacle lens). Such a lens can be purchased at an optician's for a few pence ; within a moderate range such lenses of any positive or negative length can be obtained. The formulæ given below are not strictly correct, inasmuch as the distance of separation of the optical centres of the two lenses affects the result. As, however, the optical centre of a bi-convex or biconcave lens lies within itself, if the supplementary lens be placed close to the diaphragm of a doublet lens the error introduced is for practical purposes negligible. The supplementary lens should be ground down to fit between the front and back components of the camera lens. This operation will be performed by the optician at a very small cost. If any "shake" exists when the supplementary lens is placed in position, it can be rectified by using one or two rubber rings of thickness sufficient to make the supplementary lens fit tightly when placed in position, or by cutting rings of paper or card. It should further be mentioned that the introduction of an uncorrected single lens into a lens system affects optical construction, and disturbs the achromatism: but here again the practical effect, within the limits of ordinary application, is so slight as not to matter appreciably under most of the circumstances in which a supplementary lens would be used, especially if a small stop be employed.

Ignoring the effects of position mentioned above, the following formulæ express the relationships of focal length.

Let A be the focal length of the original lens.
,, B ,, ,, ,, supplementary lens.
,, F ,, ,, ,, combined lens.

Then
$$F=\frac{A\times B}{A+B}$$

$$A=\frac{B\times F}{B-F}$$

$$B=\frac{A\times F}{A-F}$$

The following examples will show the application of the formulæ :—

(1) If a lens of 8 inches focal length is combined with a "positive" (plus or magnifying) spectacle lens of the same length, then the focus of the combination will be—

$$F=\frac{8\times 8}{8+8}=\frac{64}{16}=4 \text{ inches.}$$

(2) If a lens of 8 inches focal length is combined with a "negative" (minus or reducing) spectacle lens of 16 inches, then the focus of the combination will be—

$$F=\frac{8\times(-16)}{8+(-16)}=\frac{-128}{-8}=16 \text{ inches.}$$

(3) To find the focal length (B) required to lengthen the focus of a lens from 6 to 12 inches (it is obvious that the lens necessary will be one of negative focus)—

$$B=\frac{6\times 12}{6-12}=\frac{72}{-6}=12 \text{ (negative).}$$

(4) To find the focal length (B) required to shorten to one-half the focal length of a 12-inch lens—

$$B=\frac{12\times 6}{12-6}=\frac{72}{6}=12 \text{ inches (positive).}$$

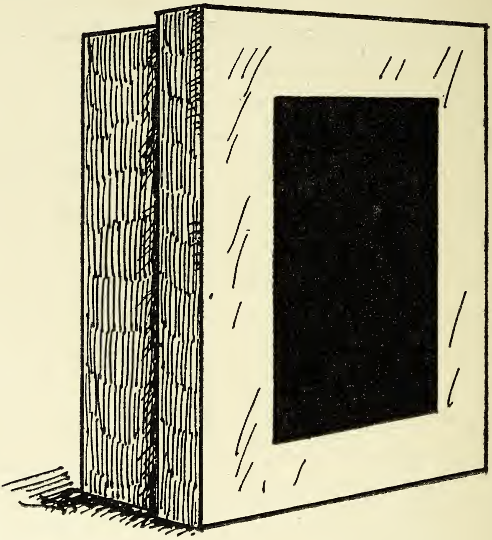
A positive lens of focal length equal to the distance of the object to be taken from the camera lens, and used in front of and in close proximity to it, is termed a magnifier. This device is frequently used in box-form hand cameras unprovided with arrangements for focussing. Its object is to convert the rays diverging from the object into parallel rays, which, passing through the camera lens, are brought to a focus on the plate. This does not alter the value of the stops, while obviously, if the focal length of the camera lens is materially altered by using a supplementary lens, a corresponding alteration is made in the stop values. Thus, if the focal length is reduced to half, F32 becomes F16. Or conversely, if the length is doubled, F16 becomes F32.

It should be noted that if the focal length of a lens is much reduced by the use of a supplementary lens, it will frequently not cover so large a plate as formerly, especially if used on distant objects. In fact, the use of supplementary lenses for this work is mainly confined to lengthening the focus, a reduction being useful only where it is desired to obtain an image of a near object on a larger scale than can be got with the original lens and the camera extension available. When so used, as the plate is racked away from the lens, the loss in covering power is not experienced.

Black Background.

This device is very useful where it is desired to photograph small objects and obtain contrast in the image. It is illustrated in Fig. 73. The construction is very simple. A box of wood or cardboard of suitable size has a hole cut in the lid, which, as well as the inside of the box, is blackened. Lampblack mixed in a warm solution of size and thickly brushed on may be used for most purposes. The interior of the box seen through the hole in the lid will then appear practically absolutely dark. This can be arranged behind the object, or if vertical work is being done, a piece of thin glass is laid over the aperture, care being taken to light the object in such a manner that no reflection of it is seen in the glass. In vertical work, if small objects, and few of them, are photographed, this difficulty is, however, not likely to occur.

Very fine effects can be produced in showing up the structural details of semi-translucent objects (*e.g.* small shells, butterflies' wings, etc.) by arranging a small piece of mirror slantways inside the box so that the incident light is reflected diagonally through the object, which is also and more strongly illuminated by the direct light which it reflects to the lens.



Example of a Black Back-ground.

FIG. 73.

TRIPOD ACCESSORIES.

Nothing is more annoying to the photographer than to find himself trying to set his camera up on a slippery floor when he has nothing handy to prevent the legs of his tripod sliding out, first one leg and then the other.

The use of sundry articles of furniture in an ordinary room may to some extent be possible, but in places such as churches, where a tiled floor is generally met with, or in places where a highly polished floor is in evidence, it is extremely difficult to work in comfort.

The camera case may take one leg and your boots the other two if nothing else is available. Three strips of metal with a slot cut down the centre, and one end of each piece turned down, form a useful piece of apparatus ; the adjustment of the legs can be made by bringing the slots together in the centre, and making fast with a short butterfly bolt, but as the adjustment and fixing must be made after the object has been carefully arranged on the plate, a good deal of care has to be used. String may be passed round the three tripod legs when set up, to prevent them from spreading. Another way perhaps more convenient is the use of short pieces of rubber tube fixed on the end of the tripod legs ; this is good for a polished floor, but on a tiled floor, if glazed, it may slip.

For general use three small blocks of wood 1 inch square and ½ inch thick may be used ; on one side of each glue carefully a flat circular rubber ring ; on the other side dish it or make a hole for the camera leg point to be placed in comfortably without slipping out. Now, by placing these one under each tripod leg (first damping the ring before placing it on the floor) it will be found to hold fast ; if slightly pressed and the ring has been carefully glued the suction is considerable, in fact, the wood will stick to a window and remain there till released.

A fourth leg attached to the front of long extension cameras is a useful piece of apparatus, and should be of very easy adjustment. It may take the form of a stay in connection with the front leg of the tripod; the adjustment of a solid leg similar to the tripod legs will be found hard to manage and not sufficiently under control when focussing. The stay may, therefore, be a light brass rod sliding within a tube slightly larger and tightened up with a thumb screw; better still, a lath of not too pliable wood, working through a metal rotating collar on the front leg of tripod, this collar containing a screw for tightening up; if this be left loose while focussing, the lath will slide backwards and forwards through the collar, and then can be tightened up and made secure. The attachment to the front of the camera may be made with a small milled screw and plate, the end of the lath being provided with a short length of slotted brass. The three-way base described in Chapter XI. is a convenient way of preventing slipping, and could, in a slightly modified form, be made extremely light and portable.

Tilting Tables.

The tilting table is a useful piece of apparatus for the worker, as it can be used for a variety of purposes. There may be some difficulty in adapting those cameras fitted with a turntable to the flat surface of the tilting table, but if a strong piece of wood, fitting above the turntable, be used with a long screw, it is possible to clamp the camera sufficiently firm to allow it to be used in a vertical position if necessary. With cameras provided with a solid base and camera screw, this difficulty at once disappears. The position of the tilting table is between the top of the tripod and camera. It may consist of two pieces of wood, hinged together on one side by a pair of strong hinges, so as to open like a book, the angle of the boards being determined by a strong brass slotted strut on each side; working in the slots are milled-headed clamping screws; the upper board has in its centre a hole and screw plate for securing the camera; the lower is attached by its under side to the tripod (see Fig. 42, p. 169). To use the table the tripod is first fixed to the lower board, the upper one taking the camera, which can be set from a horizontal position to vertical by pointing downwards; by reversing the camera, it may be pointed vertically upward if necessary. Care must be used in pointing the camera upwards in architectural work that the plate remains vertical, otherwise a good deal of distortion will take place.

BLANCHARD'S BRUSH, BUCKLE'S BRUSH, AND TEST TUBE BRUSH.

The Blanchard brush is constructed by using a piece of glass or wood about six inches long, and from one to three inches wide. At one end a piece of flannelette is fastened on by folding it over the end and using a strong rubber band to keep it in position. The Buckle brush is made by using a piece of glass tube; and into one end drawing, by a piece of string, a tuft of cotton wool, which is easily renewed when dirty. The Test Tube Brush is made by forcing a piece of soft sponge into the mouth of a test tube. The convenience of this latter is that the solution is delivered by capillary attraction to the surface only when the paper or glass is touched, the solution keeping fairly fresh for some time. Large surfaces of paper may be treated, both for sensitizing and development. Local intensification and reduction may also be done by this means. Mop and flat camel-hair brushes are also useful tools, but if tin or metal is used in the construction, they should be kept very clean, and above all carefully dried after use (see Fig. 74).

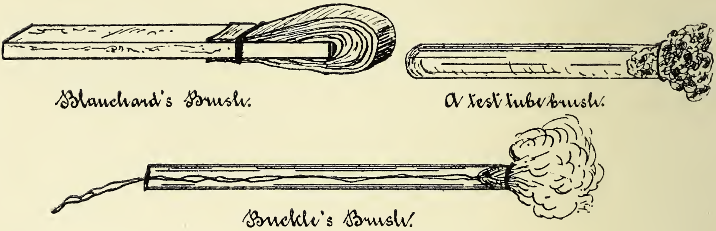

Blanchard's Brush.
A test tube brush.
Buckle's Brush.

FIG. 74.

ADJUSTMENT OF DISTANCES FROM OBJECT TO LENS (DIAPHRAGM), AND FROM LENS TO PLATE, WHEN ENLARGING OR REDUCING.

As the object of which the lens is to produce an image advances to or recedes from it, the distance of the plane of sharp focus recedes from or advances to the lens, according to the following formula :—

Let A be the focal length of the lens
,, B ,, distance from lens to object
,, C ,, ,, ,, ,, image
,, D ,, number of times of enlargement.

Then, in enlarging $C = A \times (D + 1)$,

and $B = \frac{C}{D}$ or $A + \frac{A}{D}$.

Thus, to enlarge two diameters (from quarter-plate to whole-plate) with a 6-inch lens—

C (distance from lens to paper) $=6\times(2+1)=18$ inches,

and B (distance from negative to lens) $=\frac{18}{2}=9$ inches,

or $6+\frac{6}{2}=9$ inches.

It follows from this that in copying an object full size—or in projecting a negative to give an image the same size—with a 6-inch lens—

$$B=6\times(1+1)=6\times2=12 \text{ inches},$$

and C, of course, is the same.

In copying an object smaller than nature (say half size) with a 6-inch lens, B and C are reversed, and we get the following calculation :—

distance from lens to object $=6\times(2+1)=18$,

and distance from lens to plate $=\frac{18}{2}=9$ inches,

or $6+\frac{6}{2}=9$ inches.

These formulæ, it will be readily seen, provide a means of ascertaining the distance at which a lantern screen must be placed from a lens of given focus to give a picture of any stated diameter (taking the diameter of the lantern slide as 3 inches), or, conversely, the size of picture a given lens will give at a given distance from the screen.

Thus with a 6-inch lantern lens, to secure a picture 6 feet in diameter (*i.e.* 24 diameters enlargement), distance from lens to screen (C) will be

$$6\times(24+1) \text{ inches}=150 \text{ inches}=12 \text{ feet } 6 \text{ inches}.$$

The following table sets forth the approximate distances in feet to give discs of certain useful sizes with certain usual focal lengths for lantern lenses; conversely it may be used, given the focal length of the lantern lens and the distance from screen to ascertain what will be the size of the picture:

Focal length of lens in inches.	Size of picture in feet.				
	3	6	9	12	18
	Distance from lens to screen.				
4½	4¾	9½	14¼	19	28½
6	6¼	12½	18¾	25	37½
9	9¼	18½	27¾	37	55½
12	12¼	24½	36¾	49	73½
18	18¼	36½	54¾	73	109½

Distances at and beyond which all Objects will, with a Given Lens (set at Infinity) and Given Stop, be in Focus.

The term "in focus" as used here means that any point on the object will be represented on the negative by a dot of no more than $\frac{1}{100}$-inch diameter. This will give all the sharpness required for viewing a print at the normal distance of 10 inches.

Let A be the focal length of the lens in inches.
,, B ,, aperture ratio (*i.e.* number of the stop on the U.S. system).
,, X ,, minimum distance for sharp focus in inches.

Then
$$X = \frac{A^2 \times 100}{B}$$

For instance, with a six-inch lens working at F8, this distance will be

$$\frac{6\times6\times100}{8}=\frac{3600}{8}=450 \text{ inches } =37\tfrac{1}{2} \text{ feet.}$$

The following table (giving the distances in feet for some of the usual focal lengths and stop values) may be found useful :—

Stop =F/	Focal length of lens.				
	5	6	7	8	9
6	35	50	68	88	112
8	26	38	51	68	84
11	19	28	37	48	61
16	13	19	25	32	42
22	9½	14	18	24	31
32	6	9	13	16	21

If the lens be focussed *sharply* on a test object placed at any of the above distances, then all objects distant half that length or more will be in focus in the sense defined above. This point, for any given lens and stop, is termed the "hyperfocal distance." It will be seen that for fixed focus work the lens is best adjusted so as to give sharp focus at the distances mentioned in the table, when any object not less than half that distance away will be (for practical purposes) in focus. This is the method usually adopted in the construction of fixed focus box cameras, the stop on which the calculation is based being the largest the camera is constructed to use.

It may be noted that if the negative be taken for purposes of enlargement (say to 2 or 3 diameters), the distances given above should, to secure good results in the final print, be multiplied by 2 or 3, and so on.

CHAPTER XIV

THE ACQUISITION OF EXISTING MATERIAL

A BRANCH of work of great importance to survey and record societies is the acquisition of existing material.

Under this head may be cited obtaining photographic records of early prints and of sketches, drawings or paintings dealing with an era prior to the advent of photography. No less important is it to acquire, or at all events obtain prints from, early negatives that have done their duty years ago; many of these will obviously be of great interest and value.

Unfortunately, in only too many cases the older professional photographers have disappeared, and with them has gone much of the (sometimes) valuable material they produced. Cases arise, however, from time to time where these little mines of wealth to the record hunter come to light, and in such cases every endeavour should be made to secure the negatives, or failing this their loan or at least prints from them.

The likelihood of prints from many of these old negatives being available is remote, for the negatives having served their purpose at the time they were made, the prints from them will have been destroyed or be scattered in private hands and lost sight of.

In perhaps the majority of cases such old negatives will not be in the best of condition; but they may contain portions which are of sufficient value to make a small print (contact, enlargement, or reduction, as the case may be) worth securing, and indeed often a valuable addition to a record collection.

The search for " treasure-trove " of this character is not only of importance, but has its own special interest, and it may be noted that a knowledge of photography is not requisite for those engaged in it.

Naturally the largest collections of old negatives will be, as a rule, those amassed by professional photographers. While this fact indicates the usefulness and value of the professional photographer's work from a " record " point of view, it will be obvious that he cannot be expected, as a rule, to make the same sacrifice of time and material as an amateur.

Nevertheless, there must be throughout the country many of the older professional photographers and many well-established photographic businesses from whom assistance may be expected in the direction of contributing prints from their older and therefore (from a record point of view) more valuable negatives.

The daily routine of business does not, it is true, allow to them much time for hunting through old stock negatives, but if lists of the subjects represented in photographers' store rooms are available, or if they have rough prints which can be looked over, the record seeker may be able to unearth much valuable material.

It should be borne in mind (and this may well be suggested to professional photographers) that if prints from their negatives are once deposited in a properly organized record collection, they are always available for reference, and being accessible for public reference with the name and address of the photographer, an advertisement is secured by him, with the possibility of orders for prints from his existing negatives. For a record collection, as soon as it attains reasonable dimensions, will be frequently consulted by authors and publishers, as well as by the general public.

The potential value of a negative which seems to have served its purpose may be great, especially if the negative be an old one, and this is perhaps more true of portraits than of other photographs.

Consider the case of a man or woman who has attained celebrity; frequently, nay usually, this will be late in life, perhaps not until after death. Early portraits of such an individual have, it will be easily seen, an interest and value unsuspected when they were taken, while the only specimens apart from the negatives may, and probably will, be in resting-places beyond the reach of research, for instance, scattered among different branches of the family or in the hands of friends.

It will, of course, be noted that portraits taken by other than photographic means may be discovered. There is the work of the miniature painter prior to the advent of photography; there are also outline and pencil sketches, portraits in pen and ink, chalk, crayon, lithographs, line engravings, wood engravings, etchings, monochrome portraits, aquatints, mezzotints, and so forth, besides the illustrative material existing in old county histories and in books generally.

Any or all of these can be recorded by photography, and provided the non-photographic nature of the original be duly noted, form suitable records for a survey collection. The magnitude of the field open to the record worker in this direction is at once apparent.

The question may be raised as to whether, if such material exists, is in a good state of preservation, and can be acquired or referred to, any proportionate advantage will arise from taking photographic copies.

The answer will naturally depend in great measure on the degree of accessibility of the original. But in any case the convenience of having the records in a form admitting of self-classification and arrangement, with the facilities for consultation and especially for comparison which arise therefrom, are a cogent argument in favour of this method of preserving them.

Much valuable material for a record collection can be obtained through exhibitions of works of art; artists frequently avail themselves of photography as a means of keeping for themselves a record of their productions. A timely request for a print to be placed in a record collection will rarely meet with refusal: it is usually recognized that the print will only be made use of as an illustrated document, while the compliment implied in a request for a photograph will not go unappreciated even if the possible advantages of the publicity given to the artist and his work do not serve as an inducement. A picture may obviously have a local association either through its author or its subject-matter; and records of pictures may be obtained with ease at the time of their first exhibition, which at later date are quite unobtainable.

The photographs produced in ever-increasing numbers for the purpose of modern book illustrations form a possible source of material that should be kept in view. The arrangement between author and publisher may in these cases frequently bar the use of such photographs from further publication; but this need not prevent the acquisition (of course by consent) of prints to be placed in a record collection, where due acknowledgment would naturally be given; in fact, the opportunity of so displaying them will often be valued as a means of advertisement.

Record collectors should be constantly alive to the possibility of valuable records being published by way of illustration in the newspaper press—local or other. Where no other way than by purchase is available for obtaining prints from negatives taken for newspaper reproduction, record societies whose funds admit of expenditure in this direction might do worse than so apply them, for the newspaper illustrations themselves, partly through speed of reproduction and partly owing to the quality of paper used, are frequently of but little use.

Whether newspaper proprietors always retain the negatives taken for the purposes of their illustrations may be doubted.

An instance—and it may not be an isolated one—came, however, recently within the knowledge of the authors, which indicates that valuable material may be sought for in the direction of newspaper collections of negatives. A local paper, which had for some years made a feature of half-tone reproductions of photographs portraying local events and persons, was "sold up," and the officials of the local Survey Society, hearing of the sale, were able to obtain for a nominal sum several thousand excellent half-plate negatives.

These, so far as the subjects can be identified, will be printed from and will form an invaluable addition to the collection.

Another instance, also within the knowledge of the authors, may be cited as illustrating the wealth of material that may at times come to light in an unlooked-for manner.

A professional photographer, whose work was done largely between 1860 and 1870 in the form of 12 × 10 wet-plate negatives of buildings round London, recently died, and his legatee was induced to allow these negatives to be printed from for the local Survey Collection, with the result that a large number of records, illustrating buildings and streets now non-existent, have been, or are being, added to the collection.

Yet another instance may be given. A well-known librarian in South London some years ago acquired, at the sale of a professional photographer's effects, a large number of whole-plate and half-plate negatives taken between 1880 and 1890, illustrating suburbs which have since entirely altered in character. Not being himself a photographer, he had made no use of them, but being present at a lecture given on survey work, he offered the loan of these, and thus a further and most welcome addition to the record collection was secured.

These "windfalls" are cited merely as showing that in the most unexpected quarters rich finds may come to light, provided that a sufficient number of people are alive to the possibilities of this source of supply.

Any large acquisitions of the kind just indicated, whether they be by loan, gift, or purchase of negatives, naturally raise the question of how the necessary prints can be obtained. If the Record Association be so fortunately situated that the question of expense is one of no moment, professional aid can, of course, be called in. In, however, probably the larger number of cases, the financial margin will be a narrow one. It may be well, then, to aim at building up a special fund which can be applied in suitable cases to the purchase of the necessary materials, relying on the interest of members to share among themselves the work of printing. This work can, of course, be done as opportunity offers, but while a contributor may be expected to bear the cost of printing from his own negatives, it is perhaps too much to hope that many members will be willing to incur considerable outlay as well as to give their own time and skill in printing from the negatives of others, however useful the records from those negatives may be. Paper for printing, if obtained (as it can be in quantities) on wholesale terms, is not so expensive as to place an undue burden on the funds of most Record Societies.

The growing applications of photography for purposes of advertisement, notably by railway and steamboat companies and by progressive local authorities, particularly in holiday resorts, has brought into existence a large amount of material, some of it distinctly valuable, for record collections. Efforts should be made to obtain prints from this source, and the advertising value of the inclusion of prints in the collection may be urged as an argument for the contribution of prints. The expenditure incurred in this direction is often of the most lavish kind, and the additional outlay of giving a print of each photograph to the local record collection should not act as a deterrent.

As a possible source of material, we have also commercial photographic picture postcards. In the production of these much good work has been done. both by the larger publishing houses and by local photographers, and the negatives from which they are printed are usually excellent, while the subjects, as a rule, though, of course, of recent date, are suitable for a record collection; indeed, they would in this have their greatest value. How far the conditions of their production may lend them a degree of permanence entitling them to find a place in a record collection may be a matter of doubt. They may, however, be usefully kept as illustrated memoranda, and arrangements could doubtless be made in the case of any specially useful records to secure a permanent print.

Probably in many cases the proprietors or publishers, if suitably approached, might be induced to give, for the sake of the advertisement, if for nothing else, a copy of each suitable postcard produced by them.

We have left to the last reference to what is perhaps the most valuable source of photographic records, at all events among those illustrating passing events. We refer to the kinematograph films taken for display at the many "Picture Palaces" which have sprung up in such profusion amongst us during the last few years. Many of the noteworthy local happenings (at all events in towns of any size) are recorded in this manner. A few days after exhibition their commercial value has sunk to nothing, and they represent to the picture showman merely so many feet of waste celluloid. The value of a film containing over 4000 technically excellent photographic transparencies would, in this form, be about 3*d.*! It has been found that requests, by a suitable body (*e.g.* a Public Library) for the gift of these records are usually met by a most courteous acquiescence; while if a strictly commercial view of the matter be taken, the cost of acquiring the records —by way of purchase—need be so slight as to be negligible in comparison with their real value. A method of viewing them, either as single pictures or in motion, has been described in Chapter V.

That this source of material has been hitherto almost unrecognized is unfortunate. It would be deplorable if, henceforward, through apathy or lack of foresight, any opportunity should be missed of securing such invaluable records.

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